TITLE THE CALIFORNIA ARCHITECT AND BUILDING NEWS
FORMERLY THE CALIFORNIA ARCHITECT AND

AUTHOR BUILDING REVIEW
FORMERLY THE QUARTERLY ARCHITECTURAL REVIEW

VOLUME I

DATE 1880

PUBLISHER WORLD MICROFILMS PUBLICATIONS in association with THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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The California Architect and Building Review.

VOLUME I.
NUMBER 1.

SAN FRANCISCO, JANUARY 1, 1880.

$1.50 per Annum, in Advance.
Single Copies, 15 Cents.

The California Architect
—— AND ——
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE
SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager.

Sent to any part of the U. S., postage paid, at $1.50 *per annum, with extra cost of postage when sent to Foreign Countries.*

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

ADVERTISING RATES.

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Our First Monthly Issue.

This *first number* of the CALIFORNIA ARCHITECT AND BUILDERS' REVIEW, introduces for public consideration and patronage the *first* issue of the *first subscription journal* ever published on the Pacific Coast, devoted to *Architectural, Building, Mechanical, Sanitary*, and other *kindred matters and subjects*. The simple assertion, without stated reasons, that such a publication is a necessity in San Francisco, would be a declaration without proof, and reasonably induce an inquiry as to the propriety and correctness of the presumption of necessity. The answers to this question are as follows:

First.—That all interests, avocations, callings, and pursuits in life, whether scientific, professional, mechanical, artistic, commercial, literary, or otherwise, must necessarily be more correctly and intelligently represented through the columns of a journal of special character, devoted to the special purposes of its publication. Such journals, also, provide a medium through which the fundamental principles, practices, theories, and governing rules of the interests represented, can be properly proclaimed, and important issues, principles, and questions discussed. And while they furnish reliable information to the general public, they induce better understandings, encourage harmonies, awaken ambitions, correct irregularities, inspire generous confidence, and lead to a thousand beneficial results among those whose special interests are represented through their columns.

Secondly.—That erroneous opinions, impressions, and beliefs, greatly at variance with the truth in many regards, exist in many parts of our own and other countries, in reference to California and the Pacific Coast generally, is a well-understood fact. It is necessary that as far as possible, all these should be corrected; and this journal, with a circulation already extending to every State in the Union, and to cities in Europe, with a rapidly increasing subscription-list, give assurance that it will enjoy and exert a very extended influence in correcting wrong impressions, and placing this coast in a proper light before the world. And as each succeeding issue will the more fully establish the fact, that *truth, accuracy, and reliability* are the governing rules of its management, its illustrations, statements, and representations, will be accepted as correct, and by them, opinions and judgments abroad will be formed and established. In this special view of the case, every citizen of California should subscribe for it, and support it by every influence in his power, so as to render it an unerring and permanent representative journal.

Thirdly.—Such a journal is especially necessary in San Francisco, for the reason that in connection with the architectural profession, and the building business on this coast, there has always existed greater diversities, divergencies, and opposing views in reference to matters generally, and less of well-understood, regulated and established rules of procedure, than exist in older and longer-established communities—where apprenticeship experiences are considered necessary to prepare for the practice of the profession, and mechanics, as a rule, develop as such, through regular terms of apprenticeship service. But on this coast things are different in these respects. For while there are many able and competent gentlemen in the profession, as heretofore stated in the QUARTERLY REVIEW, architects have gathered on this coast from almost every quarter of the globe, each bringing with him, and practicing the architectural ideas, pre-conceived notions, national prejudices and pride, inculcated and matured under systems and circumstances peculiar to each several section of country or community represented. The natural consequence of all this is, diversities of views and practices, not calculated to insure entire harmony in general operations. In addition to these special features, it may also be stated as a fact, that many architects in California have entered into the practice of the profession, without having received any architectural education, other than that obtained from experiences in practical building, and from personal studies and application. These suggestions are not made to disparage or question the competency or abilities of any gentleman in the profession, but to indicate the peculiar surroundings. Although every architect in the State may be fully qualified to discharge correctly, the duties and responsibilities of the profession, in the light of his own conceptions, the fact nevertheless remains, that there are those sectional and national interventions, which to a greater or lesser degree, must create a less evenly regulated state of things. And so far as this journal is concerned—while its theories and recommendations may not meet the approval of those, who, from studied and set practices and habits, are persistent in the advocacy of their individual opinions—the aims and purposes of its management will be to present such statements, and sustained arguments and views of matters generally, as will receive the approval of those who accept the doctrine, that while men live, they may continue to learn, and that outside of themselves, there are fountains of information and knowledge, from which they may derive instruction. The intelligent reader will, from all this, readily comprehend the peculiarities of the situation, and the necessity that must exist for a journal of this character, devoted, not only to the discussion of matters of general information and interest, but to subserve the purpose of creating uniform systems of practice and good understanding in the profession.

Fourthly.—It is also a necessity, as far as the general public are concerned, in giving reliable information in all matters connected with the improvement of real estate, furnishing suggestions as to proper methods, advising for and against the uses of things, beneficial or injurious, as the case may be, and in various ways, establishing correct opinions and conclusions at home and abroad, in all matters connected with architectural and building pursuits on the Pacific Coast.

Illustrations.

We expected to present in our first issue, for the double-plate illustration, the design of a public edifice, but the drawings failed to come to hand in time. If our good patrons will exercise a little patience, arrangements will soon be completed, which will render excuses unnecessary, in this or any other connection. One of the illustrations appearing, represents the front elevation of Messrs. Sol. Wangenheim & Co.'s building, situated on the east side of Davis street, south of Sacramento. The corner section, 33 x 117 feet, was erected in 1877–8, with the intention of completing the block at an early day. The building erected, together with the remaining portion of the lot, and the old building standing thereon, have been, and are now used by the firm in their extensive hermetically-sealed preserve-can, fruits, meats, fish, etc., manufacturing business. The double plate presents the design of a building intended for erection on the west side of Franklin street, north of Sacramento street. The lot was, however, improved with a less costly edifice. A building erected in conformity with the design shown, will make a very handsome appearance for a moderate cost house. In the hands of any of the competent architects in this city, it can be modified or improved to suit. Its cost as originally contemplated, some three years ago, was about $13,000, including grading of the lot and fence-work.

APOLOGIES.—We dislike them, and hoped we would have been spared the necessity of offering any in connection with this journal. But painful personal interruptions have materially interfered with intended promptness and completeness in our first monthly issue. We simply state this on our own behalf, leaving it with our many kind readers to sympathize or censure, as they may feel inclined. We hold as a rule, that in the publication of a subscription work of any sort, its patrons have claims for promptness, regularity, and fair dealing; and innovations upon these, from any cause within possible control, is a wrong committed for which there exists no right of excuse. Consequently, short of occurrences over which human powers are helpless, there will be no interruptions hereafter. And if difficulties fall in our pathway, we shall encounter them quietly, and carry our own burdens without drawing upon the sympathies of our patrons.

A Card from Architects.

It is certainly most gratifying to us to be able to present the following, signed as it is by so many leading and prominent architects in this city. We can add nothing to its force by comment, and will only say that each signature was freely and cheerfully given, accompanied with expressions of good-will and wishes for the future success of this journal. And having secured the good opinion of so many prominent gentlemen in the profession, some of whom have demonstrated their more than ordinary abilities in the erection of some of the finest and most costly structures in this State, both private and public, and all of them enjoying an unimpeachable reputation as qualified architects, it will be an incentive to us to put forth every effort to render this journal not only worthy of their continued indorsement and support, but that also of our many kind readers generally.

CARD.—Believing that a well and ably conducted journal, devoted to Architectural, Mechanical, Sanitary, Scientific, and other kindred matters and subjects, is a necessity in this city, and judging from what has appeared in the QUARTERLY ARCHITECTURAL REVIEW, published by Messrs. Wolfe & Burnham during the current year, both in illustration plates and reading contents, we are led to the belief that the CALIFORNIA ARCHITECT AND BUILDING REVIEW, proposed to be published by the San Francisco Architectural Publishing Company from and after January, 1880, will be worthy of general support and encouragement, and that it will supply a long-existing want on this coast. *We therefore*

pledge our cordial sympathies personally, and hope that the enterprise will receive kindly recognition and liberal support from all Architects and Builders on the Pacific Coast, and from the public generally.

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Society of Architects.

Why is it? Are architects as a class, everywhere entirely selfish in their views and feelings, or so full of self-conceit in their individual abilities that they fail to discover any possibility of further improvement? Or is it the spirit of indifference to anything not immediately connected with their office duties and daily engagements?

We are led to these remarks from three causes: *First.* That there is no society among the architects of this city at the present time, but should be. *Secondly.* There have been three attempts to establish such an organization, each of which enjoyed but a limited existence, through lack of interest on the part of members. *Thirdly.* Surprise at learning that a similar lack of interest, to a certain extent, exists in other parts of the country, as shown by the following from the *Plumber and Sanitary Engineer:* "The meetings of the American Institute of Architects deserve to be better attended than they have hitherto been. Barely a score were present at several of the sessions of the Institute just ended. It is idle to expect any but the most self-sacrificing persons to prepare papers, often at great pains, and then read them to a beggarly array of empty benches. A great and advantageous opportunity for enlightening the public as to the services of the profession was lost at these meetings, which ought to be attended by hundreds of hearers, and exert a positive influence upon the community.

* * * * * * *

There is no good reason why the sessions of the Institute should not be as well attended as those of the Social Science Association, if proper effort was made. The public need enlightenment on many points regarding the profession. Too many persons have an impression that an architect is a superfluity—very useful, perhaps, to draw a pretty picture for those who can afford the luxury of his services; but not necessary to any one who is willing to supervise the erection of his own building. That an architect can save money to his client by his skill and experience, or that he can protect him from loss through ignorance or the frauds and blunders of others, is very little understood or appreciated. The simple fact that so few buildings outside of our large cities are designed or erected under the superintendence of architects, shows how little the profession is appreciated.

"How is this ignorance to be removed, and how are people to be taught that it is to their interest to employ an architect, just as it is to their interest to employ any other professional man? By organized and united effort to diffuse knowledge on the subject.

"Wealthy and successful architects, with an assured position, backed by social influence, with numerous clients, may ignore these facts; but to the struggling architect in many parts of the country, who has none of these powerful aids, it is a different affair: competitions are close; clients are unappreciative; fees are few and far between; and the architect has nothing to sustain him in his professional work but his own pluck and the necessity for gaining a subsistence.

* * * * * * *

"What is needed most of all to secure these results is, that the Institute shall be conducted in a broad and liberal spirit which will attract every deserving member to its ranks; it may thus become at once a powerful agency for enlightening the public, and also an agency for stimulating and encouraging the members of the profession. Like the legendary bundle of reeds—united the profession are strong, but disunited they are weak and powerless."

There is sufficient in the foregoing extract to stimulate an active interest and effort among the architects of this city in rearing a permanent society-structure to last for all time. Of all places on earth, such an institution is needed in San Francisco, where but few of the many architects practicing the profession have been reared and trained under corresponding circumstances. The world's diversity of teachings are prominent in this city; and a well-organized institution would do much to harmonize views and surround the profession with deserved respect and appreciation. Its influence would be great in breaking down personal and business jealousies among architects; and if good rules were established and adhered to, the members of the profession would assume that dignity of calling which of right belongs to every competent and qualified disciple of the noble and beautiful art. None are more to blame than architects themselves that the profession is degenerating in public estimation, and the presumption gaining ground that almost any school-boy can "make a plan," and that contractors who are unable to draw the lines of a square box correctly, are sufficient for all the purposes of planning and erecting buildings. If for no other reason, that of self-protection should induce a combined and united effort, and a determined purpose to establish a *Society of Architects* in this city, which would exert a wholesome influence upon all concerned—owners as well as well as architects.

There are successful men in the profession who may sneer at the proposed organization; but even they, if they would remember the time when their hands were hard and callous from the daily use of the trowel and handling of brick, or by contact with the handle of the jack-plane—or, still worse, before the sun of "good luck" cast its golden rays around them, could only by the exercise of the strictest economy manage to pay their way—might render valuable service, and more adorn their profession by the exercise of generous sentiments than by acts of self-importance and financial independence.

THE BUILDING BUSINESS still continues exceedingly dull in San Francisco, with very little activity in any direction, although during the three months preceding December 1879, more buildings were commenced than during any previous nine months within the past two years or more. In the months of October and November, the indications were much more favorable than they are at present, with considerable work then offering. The general feeling, however, is hopeful, in anticipation of "better times in the spring," which thought and hope alone gives courage to the waiting ones during present depression. The fearful stagnation in this direction, which has continued uninterrupted during the past two years, is without precedent in the history of California. Hundreds of contractors and mechanics have been compelled to seek other fields of operation. Many remained until they could no longer stand the pressure, and departed under a cloud, leaving unsettled accounts and suffering creditors. A large number of our oldest contractors have remained absolutely "without a stroke of work" on hand for months, with next to nothing offering at present in the architects' offices, a large number of which are almost entirely idle. There have been seasons in this city when as many buildings have been under contract in two or three offices as there is at present in the whole number of over fifty. The cause of this condition of things is not from the scarcity of money available on mortgages at moderate interest, but mainly from a disposition on the part of owners to doubt the propriety or advisability of additional improvements at the present time, to which may be added that very many who desire and would have erected new buildings are unable to do so, through losses sustained in mining-stock operations during the year.

SOME ARCHITECTS may entertain the opinion that they do not require the benefits to be derived from a society formed for mutual interchange of views, and professional fellowship. They may feel that they can "paddle their own canoe," and sweep down the stream of life single-handed. This cold and contracted view of matters illustrates an absence of broad and generous sympathies, and is in strong contrast with the fundamental principles of refined natures. The great fact is well established that the number of men, *if any*, who have gathered in themselves the perfection of knowledge, is exceedingly limited, and difficult to point out. However wise a man may be, there are still things of stupendous magnitude lying beyond the scope of his investigations and attainments, worth his seeking. A single drop of water is as pure in its isolation as when added to other drops, but the commingling of drops create volume, and from drops comes springs, from springs rivulets, and these in their multitude, flowing on, form lakes and rivers, which in turn flow into seas and oceans, and so make up the great volume of the mighty deep. And so with great men. From infancy of thought in themselves, they commingle their own with the thoughts of others, and this continued, develops into the great oceans of mind which have made some men truly great. As the single drop of water would soon evaporate and pass away unnoticed, so do men of small, isolated minds pass away from earth unblessed and unknown. Sometimes life's successes swallow up all the good that may have been the natural gift to some. The weight of wealth or accidental position often sinks true manhood, leaving on the surface the bubbles of conceit and arrogance.

A Methodist Preacher's Experience.

While we were operating in the Colony of ——— some eighteen years ago, there came along a Methodist preacher who had in his younger days learned the use of carpenter's tools, and finding that there were more preachers than necessary for the field, he, like a prudent and industrious man, threw aside his clerical coat, and went forth in search of work. Finding a brother-Methodist contractor, he asked for "a job," which was given him by his good brother; and as the preacher was somewhat out of practice, with hands soft and tender, he requested, as a favor, that light work might be assigned him until he "got used to it." The light work at which he was set was "ripping up" two and three-inch plank, which is about as trying to a man's muscles and strength of endurance as any other department of labor in connection with the building business. We passed him a number of times as he, with trestles spread upon the sidewalk, toiled and sweated in the then-prevailing scorching sun, plying his saw industriously through the heavy plank. But there was no respite until Saturday evening arrived, when with the rest he was summoned to receive his wages. He observed the fact that four dollars per day was the rate of wages received by his fellow-workmen, and he naturally supposed that he too would be paid a like sum; until his Christian brother informed him that three dollars per day would be his allowance. To this he objected, when, as he afterward stated to us, about the following dialogue passed between him and his employer:

Boss—Can't pay you full wages, you have no tools.

Preacher—But I found tools to work with, and worked faithfully.

Boss—But you borrowed them; you have none of your own.

Preacher—Yes, but I did not borrow them of you; and it appears to me that it should not concern you if I did borrow the tools used by me, so that I performed a proper day's work.

Boss—Can't help it, it is against my rule to pay full wages to men who have no tools of their own.

Preacher—And you propose to deduct from my wages one dollar per day because I borrowed a saw and chalk-line from some one other than yourself?

Boss—Yes, that is what I propose.

Preacher—Then your proposition is to collect toll on other people's property?

Boss—Call it what you please, this is my rule.

Preacher—Do you know what a saw and chalk-line is worth?—that being the extent of tools used by me during the week.

Boss—I do.

Preacher—And so do I. A saw would cost me two dollars, and a chalk-line two bits; and you now propose to charge me out of my wages six dollars for the *use* of tools which would only cost me two dollars and twenty-five cents to purchase outright?

Boss—It makes no difference; my rule is to deduct one dollar per day from those who have no tools of their own.

Preacher—All right; if that is your determination, pay me the amount.

Boss—Here is your money.

Preacher—Now, Brother ——, we are all square according to your rule and sense of right?

Boss—Yes, all square.

Preacher—Then as you have had it all your own way, I presume that I have the right to express my opinion of the transaction?

Boss—Yes, such is your privilege.

Preacher—Then it is this: If I owed the devil a hog, and he would not accept you in full settlement, and return me all the lard he could render out of your carcass to boot, I should consider him a hard customer.

This is no trumped-up story. We know both parties well. The contractor is now operating in this city, and the last time we saw the preacher was at Calistoga Springs in this State, of which he was then proprietor. The preacher's statement was made to us at the time of the occurrence.

The Two Startling Explosions

Which have recently occurred, one in this city and the other in the City of Oakland, each presumably in connection with either or both the street-sewers and gas-light mains, afford opportunity for some practical suggestions beyond the well-understood fact that aëriform elastic fluids of various characters will explode from causes, and by spontaneous combustion, under certain conditions. In the cases alluded to, appearances sustain the theory that owing to defective sewerage, or vents in the mains, a volume of gas escaped from one or both of those conduits and distributed itself through the ground, lurking in such cavities as existed below the surface, forming a sort of gas magazines, which, in due time, vented themselves in both cases by explosions which produced fright and alarm, but happily in neither instance caused loss of life, or any considerable damage to property, as the ruptures occurred mainly along the contact lines of the streets. Whether there were but one or several leakages in the conduits, the fact is certain that the ground for a considerable distance was surcharged with the explosive fluids, which were feebly held below the surface of the ground by the more compact condition of the roadways. But had the same amount of gases been confined in a strong receiver and explosion occurred, the reports and results would have been much greater, if not fearful. But the loose character of the earth formation furnished no sufficient resistance, and the explosions vented themselves in the open air, as particularly illustrated in the Oakland affair, where buildings at considerable distance from the point of explosion were greatly discolored by the heated fluids. Men pass along the avenues of business and social life, enjoying the thoughts and appearances that all is well, because the surface of matters and things generally present no signs of evil; while in fact we are surrounded with more or less of dangers on every hand, and while in the enjoyment of immediate pleasures and fancied security, there may be beneath our feet accumulations of destructive agencies possible at any moment to destroy both our lives and property. It is not impossible, but we hope improbable, that like events to these noticed may happen at any moment wherever these dangerous forces exist under ground. These considerations should stimulate greater and deeper interest in these connections, and stir up the judgment and energy of all good citizens to a full and proper understanding of all the involvements in connection with sewerage, sewer-gases, and other matters of a sanitary character. Every aperture, break, crack, and crevice in sewers and gas-mains send forth a certain quantity of gases, which distribute themselves through the earth formation and work their way to the surface, intermixing with, and polluting the atmosphere, and vitiating the air breathed by those dwelling upon or passing over such localities, until blown away by the free winds that blow around us, or are otherwise consumed. Gases passing through limited orifices have greater force at their immediate point of escape, but are in fact only more terrible than when more wide-spread by diffusion in the earth formation, because of their concentration. Wherever present, they contain the germ of disease and inherent explosive characteristics.

The lessons to be drawn from these well-established facts should awaken a large degree of interest, if not alarm, in the minds of those who have control over sewer-works, whether as owners of private property, or officers of city governments. Too much exacting care cannot be exercised in this class of work, both public and private, and the two recent occurrences should serve to illustrate the dangers which lurk around and beneath us; and while they have passed, doing but little damage, there is no certainty that a casuality attended with sad consequences may not happen at any time or place where explosive gases accumulate in sufficient quantities.

Their occurrence under certain conditions, are as natural as that inflammable matter will consume when fire is communicated. Intelligent people are not surprised at the effect produced, but wonder that the warnings which always precede such explosions, are not regarded.

Improperly constructed street-sewers, imperfect cesspools at street-crossings, bad connections of side-sewers to street mains, and all similar errors, are each an agency or means calculated to create disease and cause explosions; and those who have it in their power to prevent, yet tolerate and disregard such irregularities, do a wrong to themselves and their fellow-men. Purity in the earth upon which men dwell is as necessary to health as the observance of any other sanitary law; and to expect freedom from disease and security from danger when the ground on which we walk is surcharged and impregnated with foul and destructive agencies, is preposterous.

The unpardonable neglect and gross carelessness attending the laying of sewers in connection with buildings is of serious magnitude. There is not one case in ten where proper and *intelligent* care is practiced in making the joints and connections, and, in former years more than at present, not one in a hundred of the side-sewer traps, as inserted, possessed any value as such. This is not stated upon conjecture, but as the result of practical experiences. Owners often delude themselves with the impression, when they have paid for the insertion of a crooked piece of pipe, that therefore their sewer must be trapped. Forty pieces of such pipe might be laid in line, and if not properly made and set, not one of them actually afford any protection against the sewer-gases. Architects are often called in to detect the causes of gaseous smells under or in buildings, and when they express doubt as to the perfectness of the sewer-work, they are met with the assurance that "it is all right and *perfectly trapped*," therefore it cannot be the fault of the sewers; while in fact the whole secret of the difficulty may exist in next to no joints at all at the sewer connections, and a trap worth not a farthing as such. Almost of necessity sewer-pipes are in part run under buildings, and if in these the least leakage occurs, the vapors rise and linger between the ground and floors, from whence they largely work their way up in the walls of the structure, distributing themselves into the apartments throughout, insinuating themselves more freely in such parts of the house as afford the greater facility for their ingress. All these effects are increased or diminished by certain conditions. When strong winds or storms prevail, blowing into mouths or outlets of street mains, the noxious gases are forced back and driven with greater fierceness and volume through every escape under buildings and elsewhere.

In this view of the case, does not a large degree of culpability rest upon fathers and husbands who permit the execution of this branch of work in connection with their homes, where devoted wives and loving children are required to remain almost constantly subject to the consequences of any mistake or oversight that may exist? And those who build houses to rent are scarcely less than criminal in any neglect practiced in sewerage. Some men are so lost to every right and ennobling consideration, and so in love with their purse and coin, that, for the sake of saving a few dollars, but little care and attention is paid to the sewer and sanitary features of their tenement property, although the money thus saved to them may to their tenants cost health and life itself.

We hope the time will come when the full magnitude of this whole matter will be fully comprehended in detail by the masses, so that men will not only exercise proper judgment and care in the sewering of their own home premises, but that when men aspire to official positions, wherein in any manner is involved the health and safety of the community, they will be required to possess an intelligent understanding of the nature and principles of conditions and elements, vaporous and otherwise, and the great fundamental basis of human happiness, sanitary laws; for upon them rests all that makes life desirable—health. God, in nature, has provided health-imparting and pleasurable things, and others opposite to these. If by bad judgment or carelessness the good is disregarded, the evil only remains; and this must be accepted as the result of our follies, if we neglect or refuse the better.

DETERMINATION, ENERGY, AND INDUSTRY, controlled and governed by good judgment, are concomitants necessary to any fair degree of success in life. Through lack of these, millions of men have lived out their days and passed from earth unnoticed, who possessed innate capabilities and qualities of nature and intellect sufficient to have placed them in the fore ranks of conspicuous men, and made their lives a grand success. It is not so much what a man really is in and of himself, what talents or accomplishments he possesses, as what *he develops and makes appear to others*. A man may be endowed with powers and abilities of far more than ordinary character, and possess faculties and qualities of heart, mind, intellect, and genius of the highest order, which with proper use and exercise, would insure brilliancy; but for want of energy, tact, and perseverance to make them known to others, and bring out those dormant natural endowments or acquired attainments, life is wasted in seclusion, and he finally passes from earth, leaving it, his fellow-men, and himself none the better for his forty or four-score years spent amidst the sunshines and storms of time. The richest diamond that sparkles in imperial crowns or adorns the neck or hand of queenly woman, remained valueless so long as they continued buried in the soils and sands of earth. It required first their finding, and then the manipulations of the lapidary to bring out and establish their magnificence and worth. The masses of gold and precious metal distributed through the bowels of the earth, although in themselves precious, remain practically valueless, until through the hard toil and labor of strong and sturdy hands and arms, they are wrested from their deep secretions and produced in bullion and forms, to give them commercial value. So with many men possessed of great natural, scientific qualifications, mechanical skill, intellect, genius, and masterly abilities; through *stolid inertness* they permit the hours of time to flit away unimproved and themselves to die unnoticed and unknown; while others far less qualified to fill important positions in the affairs of life, make their influence felt, and, by diligent application and energy, secure to themselves honorable names and memories, enjoying while they live the fruits of their earnest work, and in passing away leave to others the benefits of their labors.

Extremely Unwise.

Some economizing owners, when they determine upon the improvement of their real estate, pursue a very unwise course in the procurement of plans. Destitute of any proper knowledge of the architectural business, they run from office to office, or otherwise hunt around to find the *cheapest man*, whether he be an architect or contractor, who will agree to *spoil* a certain amount of paper for them, for the least amount of money, far below any sum noticeable by any qualified architect. Plans procured under such circumstances are but little better than the goose-quill scratchings of an old grandmother with spectacles. Too many owners fail to realize or understand that competency as an architect can only be acquired by years of close study, application, and experience, and not even then, if the student lacks the proper *mental qualifications*, and mechanical perceptions to master its difficult and diversified principles, lines and problems. As well might it be expected of a "quack doctor" to perform a difficult surgical operation, or a "shyster" or "pettifogging lawyer" to prosecute or defend an intricate suit in law, as to suppose that every one who displays the sign "Architect," and so designates himself, or contractors whose architectural ideas are only incidental, are competent to prepare full, accurate and correct plans for any sort of a building. And thousands of owners have reaped the consequences of their folly in this connection, and paid dearly for their "penny wise but pound foolish" course. A man may save five, fifty, or five hundred dollars in first cost, by the employment of a *cheap* architect, only to pay out in repairs, or lose by diminished rents yearly, ten times the amount saved by their economical discriminations. It would be wiser in any case, for an owner to pay a *good* architect four prices, rather than accept the serv-

ices of *some* gratuitously. Too much care cannot be exercised or practiced in the planning of buildings, for the pay and profit of improved property is always affected and regulated by the character and completeness of the improvement. Any sort of a structure will rent for some amount, while the rental profits from one unexceptionally well planned, will be very much greater.

Nor does it follow, as a necessity, that extra cost must be involved in the production of better-planned buildings. There are hundreds of edifices in San Francisco most wretchedly designed throughout, and which rent unprofitably or not at all for long periods, which have cost more in their construction and infinitely more in incidental repairs, etc., than would have cost to erect every way better more desirable, better-paying, and handsomer buildings, with a competent architect. The matter of first cost, of architect's charges, should not be held paramount; for a moderate additional first outlay often secures *ten-fold* interest on the additional sum. The essential question, that which involves the greater amount of interest to owners, is not *cheapness* of architectural services, but the selection of the *best* at reasonable, paying percentage. An architect who is either ground down to, or of his own accord proposes or accepts *starvation* prices, cannot afford to be honest. They, like other people, must live. Office and living expenses must be met, and the means must come from some source. Competent and strictly honest architects will not perform professional services for insignificant and nominal compensation, any more than other qualified professional parties, who have spent long years of laborious study and diligent application to perfect a knowledge of their profession. The very fact that a *professed* professional party offers to perform services at *day-laborers' wages*, establishes the other fact that there are other compensating sources in view, or that neither his services nor productions possess any real value or merit.

The Meanness of Personal Prejudices.

Every human being dislikes to be stigmatized as being mean in either principle, purposes, or acts, and feels the degradation which attaches to the accusation. The natural inclination of human kind is to admire and applaud munificent and liberal things, and commend their practice in others, although in themselves no germ of the better elements exist. Yet, strange as it may appear, a majority of men practice meanness in its worst form, by indulging in personal prejudices against others, without warrant or provocation. The ungoverned and uncontrolled tendencies of the weak or bad qualities of their natures, lead them to cherish and indulge in unrestrained virtual enmity, doing secret and sometimes mischievous injury, unjustified by a single existing fact. There is a depravity and vileness in all this which should justly cause those who are so feeble in moral sentiment and determination to be ashamed of themselves, and seek to cast off the imputation when brought home to them. Men of pure and discriminating minds rise above this base condition, and regulate their convictions from examined facts; while those who assume for themselves the spirit of justice and fairness, yet those allow in themselves *pre*-judgment of others, assumes a virtue not possessed. These thoughts and reflections are awakened by the knowledge of the too-common fact, that men in all the walks of life, from the paths within sacred edifices, to the least favored of our race, are guilty of the condemnable practice. By unjust prejudices against them, thousands of men, better in every essential of true manhood than their persecutors, have been crowded to the wall, and made to suffer from this iniquitous and by far too-prevalent disposition. Why will men defile a nature—gift of the eternal God—by polluting and degrading it to so base a purpose? The voice of human mercies cries: What sin, what deed of guilt, what crime has thy neighbor committed *against thee*, that justifies thee in harboring evil toward him? Remember this: Personal prejudice entertained without unquestionably good and sufficient cause, is the dwarfed and meanest offspring of hell—the conjuring of an impure, weak, or wicked mind—the deformed and hideous monster of moral depravity. If *to thee* and *against thee* a man is innocent of sin, he deserves thy respect and fair opinion, and their withholding by thee stamps upon thy brow the guilt of dishonesty. For that which to thy neighbor belongs, whether of glittering gold or lesser values, or thy own mean recognition are his of right; and unless against public, moral, or social law, he has committed offense, there is no law of God or among men that will uphold thee in the guilty act of personal prejudices. Nay! Personal prejudices, unsustained by causes, is a meaner crime than hatred or revenge, for it is the concealed and sneaking outgrowth of mean natures. The man who hates another for an offense committed, or who, from feelings of revenge, pursues to severe punishment the man who has inflicted an injury, may be tolerated if not commended. But there is no place in the catalogue of human charities or considerations for the creature who yields his mind and nature to the control of personal prejudice. It is so unnatural and debasing that it should never find lodgment in human hearts; nor does it in the better and nobler kind. If you are disposed or inclined to feel ugly—for personal prejudices are monstrously ugly—go to him whom thou wouldst hate and injure, and assure thyself well whether thy ugliness arises from the *vileness or weakness of thyself*, or is indeed justified and deserved. To hate or dislike where, *of thyself*, thou knowest or have suffered no wrong, is a mean and guilty act. If thy prejudices are the result of sayings and assertions uttered by slanderous tongues who seek revenge in false accusings, not bravely in the presence of him who is sought to be slandered, but treacherously where the accused can make no defense, be manly, and purge thy soul from its corruptions; nor until of *thy own knowledge* a man merits thy disfavor, do thou dare to risk thy honor and *thy manhood* by accepting and indulging in personal prejudices against him. Good men often suffer from false tongues, and the embitterments of time come more from this than any other source. It is an old saying that children grow fat by playing and plunging in the dirt. So do corrupt minds feed and strengthen by indulgence in the foulness of misrepresentations. But because dirt fattens it is none the less *dirt*, and the pure in heart and nature prefer leanness with cleanliness to fatness derived from filth.

This journal dares boldly to raise the standard of honor, justice, and fairness to all, even to the greatest enemy of its managers, and it is hoped that none will be so unkind as to exercise any feelings of prejudice toward anyone connected with it until, by *personal interview*, the fact appears reasonably conclusive, and that there is good ground for it. In the recital of stories, one side is always good until the second is related, and generally the least sustained by fact is the first and loudest to state grievances, upon the principle that the greatest rogue is the fiercest in his calls of "stop thief." We therefore say to all, be fair and just with us, and blast not thy own standing in the realms of purer life by soiling thy soul with the uncleanness of personal prejudices, if any such exist in thy nature, not only toward the management of this journal, but to thy fellow-men. Ever and always act fairly and do justly, that life to thee may be pure, and death bring thee no remorse.

"The Quarterly Architectural Review

For October, comes to us crisp and fresh in style and matter. The proprietors, Wolfe & Burnham, announce that from and after January, 1880, it will be published monthly by the San Francisco Architectural Publishing Company. It will be found to supply very valuable information to architects and builders, and should command a large patronage."—*S. F. Daily Evening Post.*

The *California Architect and Building Review* makes this its first appearance, as promised, under date of January 1st, 1880, to supersede the *Quarterly*. The effort of its managers will be not only to make it valuable to architects and builders, but to the *general public*, who should as much, or more than architects and builders, read its contents. Its columns will by no means be confined to the lines and limits of theories in the science of architecture in their technical senses, but with these, furnish such valuable information and suggestions upon all practical points and questions involved in architecture and house-building, as current experiences shall present.

One of its chief subjects of review and discussion will be the great and essential one of *sanitary laws and necessities*, in which we shall not only avail ourselves of the many intelligent sources of information at our command, but draw from our own practical experiences in this connection. We shall be very careful to fortify ourselves thoroughly in all things asserted, advocated, or proclaimed, so that our patrons may be safe in accepting the views advanced. It will not, perhaps, be possible to avoid conflict of opinions in all matters, with others who have enjoyed and practiced certain lines of experiences; but differences of opinion between intelligent parties can be discussed to mutual advantage, where each is willing to yield his own to a better system. And wherein differences may arise, the columns of this journal will always be open to the views of others; and we invite every architect, plumber, artisan, and other qualified person to avail himself of the privileges suggested, and by free interchange of ideas render service to each other and the general public.

"It comes to us crisp and fresh in style." So we intend it shall always be, with this difference: When we first began the work, we knew nothing about editing and publishing books, papers, or journals, and if during our greater inexperience we have produced so acceptable a journal as has been accorded to us by our contemporary named, and others, and by hosts of friends, there is every reason to believe that when we get well into the work, the *good* will become *better*. There will be no "dry rot" in its columns. Its construction will be all of "new timber, well seasoned," or "*sound* old timber" re-used.

Leaky Buildings.

There are but few things more annoying or less excusable. They always result from either carelessness or incompetency on the part of some one. If the architect fails to provide against them by his plans, specifications, and *details*, then the fault is his. If such proper provisions are provided, then the fault lies with the mechanic. But in no case is there any defense. If a leak occurs, the cause can generally be ascertained and a remedy applied. This being the case, how much more easily could they be prevented by proper execution of the work in the first instance. Sometimes they result from reckless indifference on the part of subordinates, who, claiming to be "first-class workmen," are intrusted with certain parts of the work with confidence in their ability to do it properly. Journeymen mechanics are supposed, and ought to, understand necessities in all connections, and those who do not are not competent men. And if the contractor happens to intrust work to men who are either incompetent or careless, and leaks follow as the result, the contractor receives the blame—he being the responsible party—while the immediate cause may be in the man to whom he has paid coin for causing the trouble. Contractors as a rule, aim to avoid leakages, knowing that if any occur the blame will fall upon them, and to remedy a leak after a building is completed costs ten times more than it would have done to prevent it by proper care while the work of building was in hand. Still, there are contractors who are as stupid in reference to proper construction as the second-class men employed by them as journeymen or sub-contractors. The experience of all architects is, that competent contractors aim at proper execution, even if loss on the work is apparent, while the opposite class care but little how the work is done so they *get it off their hands*, and secure the contract money. Sometimes leaks result from design and intent, just for the "fun of the thing," or to "get even upon the owner or architect," who may have given offense by being "too particular" in some special matter. "Revenge" on owners and architects often influences bad work, which does not develop itself until some time after the completion of the building. Sometimes leaks occur from unintentional oversight or accident with the best of mechanics, where willfulness and intentional neglect is absent. But if damage result to the plastering or furniture, or otherwise, the effect is the same. It matters not as to the manner of killing, if a man is killed he is killed; whether by the knife, pistol, poison, or any other means, life is destroyed. And so with leakages, where they occur, and damage follows, the damage and loss is the same. But of this owners may rest assured, that every good and competent architect and builder as much deprecates a leak or any other defect in a building as does its possessor. And where good and qualified men are engaged because of their reliability and qualifications, instead of the "cheapest man," simply because he *proposes* to perform the work for the least amount of money, leaks and all other defects would be less likely to occur, and better building be a certainty. Owners would better subserve their own interests by letting their contracts to the best and most reliable men, even if first cost should be greater. In the long run it will prove to be money profitably expended.

Mother.

It is an endearing name, around which in every happy family, clusters innumerable never-to-be-forgotten memories and recollections. Whether it be true in fact, or simply fancy's teaching, that angelic spirits hover around loved ones on earth, and guard their sleeping hours, there is no fancy in the thought that a true mother's love and anxious solicitude is ever in exercise toward those to whom she has given birth; and he or she who loves and honors not a *good* mother, is unworthy of being and existence. What would not a pure and devoted mother do or endure for her children? What would she not suffer to save them from harm, or to increase their happiness? As gushes and perpetually flows the crystal stream from the mountain's rocky heart, or rising from the depths beneath, trace the rivulet's course, stimulating growth and verdure in its passage to the great ocean, so a mother's devotion and watchful care never cease to swell up from the depths of her heart, and in streams of smiles, and words of kindness and love, spread happiness through the rivulets of family relationships, beautifying and rendering verdant and lovely the garden of home, until in the great ocean of death her soul is absorbed in the unfathomed mysteries of the great hereafter. Loss of sleep and rest, fatigue, hard toil, watchful interest, and ceaseless solicitude, are the experiences of every fond mother. And the being who returns ingratitude, disobedience, and waywardness, deserves not the blessings of life or peace of mind. Devils there must be, not with traditional pitchforks of steel, and fumes of liquid fire gushing from their mouths, but spirit devils, who infuse into the human mind the poison of their own nature, causing to be hated that which should be loved, and the abuse and dishonor of that which should be honored and defended.

Mother! Her picture adorned with silent smiles, and the expression of a loving and devoted heart, hangs above the pen that writes this, and the heart of him who guides it melts in love, deep, earnest and true, in recollection of her who was so truly loved in life. Death bore her away years ago, but only her mortality—not the immortal of the endearments she established in life, never to pass away until the last of her offspring shall cease to live. And although the cold earth encompasses her ashes, her memory remains fresh and green with her children, nor have the fires of true and earnest love, kindled and fanned by her in life, ever for a moment diminished, nor the long years of separation worn away the happy recollections of family joys and happiness inspired by her presence, counsel, and influence in life. So good was she, that if there be in heaven one brighter, better, holier spot, it is where her spirit rests.

AT THE LATE ANNUAL MEETING of the American Institute of Architects, President Walters remarked: "The demands of the hour are great in the direction of domestic architecture; and questions relating to sewerage and sanitary appliances should be regarded by architects as the objects of study that demand the most serious attention." Unfortunately, in California these important matters are too little appreciated. Every fellow "knows all about it." As a general thing, a common understanding of how sewers should be put in exists, and the work being done by contract, at the lowest competitive figures, the great concern of the successful bidder is to get through with the work with as little expense to himself as possible, so that his profits may be the greater. If sickness or death result from his neglects or hasty work, it entails neither sorrow nor expense on him, although he be practically the party causing both. In time, we hope, through this journal to create a public sentiment which will produce a decided change of opinion and interest in this matter; for it is an important one, and its importance is an additional argument in favor of a Society of Architects, where the important question can be fully discussed.

Death of Mr. Charles L. Bugbee.

It is with feelings of sincere and heart-felt sorrow, that in the first monthly issue of this journal, we should be called upon to record the death of so esteemed, highly respected, and honorable a member of the architectural profession in San Francisco, as Mr. Charles L. Bugbee. We knew him personally for many years, but time and acquaintance only served to increase and enlarge our esteem and appreciation of him, who has passed from among us in the prime of his manhood. Had he lived his allotted time on earth without an error or mistake on his part, he would have been more than human. But we know of nothing that can be said of him, that would reflect disoredit upon his memory. In his death he leaves a record worthy of emulation. Honest in his transactions; honorable in his intercourse with fellow-architects; alike just to those who confided their interests to his abilities and integrity as an architect, and to those over whom he from time to time exercised the control of his professional authority, secured to himself a good name and reputation, and hosts of warm and true-hearted friends. Cut down in the prime of life—how sad! yet life to none is assured but for the immediate present. Even while we live in the enjoyment of apparent health, the slayer's fingers may be playing upon our heart-strings, to land us, ere another sun shall chase away the gloom of night, to meet the realities which are hidden from mortal sight, by the light of life and time. Whether joys perpetual, or slumbers eternal fill up all there is of the future, we each for ourselves shall know, when our final destiny shall be reached, through the dark portals of the tomb.

Our Sanitary Department.

We invite physicians, scientists, plumbers, and others, to furnish us with brief articles for this department of the ARCHITECT AND REVIEW.

Health and life being contingent upon the sanitary conditions encircling every individual, this journal will, from time to time, contain such statements, advice, and recommendations as our practical experiences and contacts have established as good and best, and such as shall be culled from the many intelligent sources of information at our command. We hope to make this one department so valuable to the general public that it alone will compensate a hundred-fold the cost of each year's subscription.

In the erection of every building, whether intended for a private residence, tenement house, hotel, or any other purpose, where human beings dwell or meet, the first consideration should be the sanitary conditions of the locality. The exercise of intelligent, prudent judgment should begin with the selection of location; for it matters not what degree of care and mechanical skill may be employed in the erection of a building—if the surroundings are zymotic or pestilential, all other efforts will be unavailing to secure healthfulness. Sewer-gases may be guarded against and good ventilation secured, but if the *elements of disease* exhalate and vaporize from the earth formations upon which a building may be erected, intermixing with the atmosphere breathed into the body, or if wafted from approximate localities, poisoning the air, neither the strength or vigor of manhood nor the skill of physicians will be sufficient to resist or counteract their deadly effect.

The second great and important consideration is the matter of sewerage. Its essentiality to healthfulness is such that the man who is careless in its proper execution deserves punishment, whether he be *knave*, not caring for the consequences of his neglects and omissions, or a *fool*, not understanding the nature of the work in hand, nor the fearful results likely to follow from his stupidity. The mad folly of owners, supposing that every man who can use the pick and shovel is competent to insert a sewer, is monstrous. There are thousands of men who make pretensions in the art of laying sewers who are no more qualified for the purpose than a jackdaw is to sing a song. Thousands of feet of sewers are defectively laid every year, which has brought business to doctors and undertakers, and yet owners are willing to let their sewer-work to the cheapest man, for the sake of saving a few dollars of expense, only to pay out many times the amount saved in medicines and funeral expenses. It requires skill and intelligence in performing this work properly, and a wise owner will not intrust it to unknown hands, but seek the best and most capable to perform the work, and pay a fair price for it, so that every principle connected with sewerage may be observed and put in practice. The fact is here stated, with proof at hand, that hundreds of traps in the side-sewerages of this city are entirely valueless, and afford no security in the matter for which they are intended, and but seldom are the joints properly put together and connected. As a rule, the cement—which is as often only common mortar, or the intermixture of cement so indifferent that it amounts to but little for its adhesiveness or strength—is placed in the ring of the female connection, and the dry end of the male connection inserted, and the joint then completed with the cement on the outside; while, in fact, the band should be well filled all around with strong cement before the connection is made, so as to make an absolutely water and air tight joint. Still, with all the momentousness of this class of work, very gross neglects are practiced by those executing it, and overlooked by those having the matter in charge. If the unwritten history of sickness, disease, and death could be known to the living, the record would be appalling in the extreme, in connection with defective sewerages.

Where the joints are not made absolutely air-tight, the sewer-gases will force their way through them, and if prevented from entering the building, they distribute themselves through the earth or sand, corrupting and poisoning the earth, and working their way to the surface, to intermix with the atmosphere around the premises, to be taken into the system with every breath. People sometimes wonder why their children become ill—why pneumonia, diphtheria, etc., seizes the fond object of affection and passes it into the embrace of death. Loving parent: perhaps, covered up in the playground of your child, there may be a badly-made joint in the sewer, which emits a flood of vicious gas daily, and while your little ones are at play they may be breathing a corrupted atmosphere, which is sure to result in sickness. Perhaps there may be no smell sufficient to attract attention; but the source of disease is nevertheless present, and disease diluted is still disease. We warn owners and parents to observe the theory asserted in this connection, for there is fact in it; and we say to every tenant, as well as to every owner, be careful in this matter. Of what consideration is cheap rent, and cheaply-built houses, and cheaply-laid sewers, if the total of the bill of costs and expense foots up with the loss of life as a finale.

Limestone.

Common limestone is a carbonate of lime, more or less pure. It is exceedingly soft, and readily acted on in the state of chalk. It is harder and more stony in the oolites and other building-stones, common in England and elsewhere. It is exceedingly hard and often barren, in the carboniferous or mountain limestone, and in numerous varieties of marble. All pure limestones work up into soils having peculiar properties; they are often red in color, from the oxidation of the iron commonly present in the crevices; they are almost always cracked and broken by weathering near the surface; and often, in hilly or mountain districts, the soil and rock to a great depth consists of fragments of stone, not water-worn, but quite angular and confusedly heaped together, obtained by the breaking-up of the surface beds of hard stone, by the action of rain and weather. Such accumulations are not of necessity infertile. The vine and the fig-tree, and some other trees, whose cultivation is very important, find abundant nourishment in soils of this kind. In the island of Cephalonia, where the currant-vine is cultivated to perfection on the flat lands and valleys, the best soils are entirely composed of limestone fragments, the interstices between large stones being more or less filled up by the finer and smaller fragments of the same material. Not far off, on the hill-sides in the flanks of the mountains, the grape-vine bears admirable fruit, when planted on heaps of stones with no perceptible soil of any kind, the stones lying at the natural angle they assume when thrown together. So in the south of Italy, the vine and fig-tree are grown on lava, with scarcely any intervention of soil. In the south of Spain, and in the north of Africa, stony soils are by no means infertile for certain crops, even when the stone is nearly a pure limestone.

Indian Summer.

The origin of the words "Indian summer" is disputed. We have heard Mr. Webster say he was satisfied it came into general use from the autumn fires of the Indians kindling the wood and producing the "smoky" atmosphere. But the most satisfactory explanation was that of a man whose love and observation of nature were inferior only to Thoreau's. He said that the name dated from the earliest settlement of the country. The colonists, warned by the early frosts of September, began to fear an early winter, and made every preparation. But the Indians assured them that winter was not at hand, and that there would be warm weather or summer yet. When, therefore, the milder days came, in late October and November, the colonists said: "Here is the summer predicted by the Indians"—the "Indian summer." If it is not true, it is well imagined. It is a natural and plausible explanation, and ought to stand until a better one can be offered.—*Harper's Weekly.*

Our Prospects.

The encouragements received in subscription and advertising patronage, and the good-will and commendations expressed on every hand, are of the most gratifying character. We refer with pleasure to "*A Card from Architects*," appearing in this issue, signed by a considerable number of the leading architects in this city. Others would have added their names, had the opportunity been offered. Those who have declined to do so, have exercised their individual rights, for all men enjoy the right to do just as they please, so long as the exercise of that privilege does no wrong to others. But the grounds of declination may be stated thus: One is wealthy, having been more than ordinarily successful, and his financial successes, together with his *national prejudices*, have so affected his views and opinions of men and things that he conceives nothing worthy of indorsement, which does not emanate from *his* skillful hands or prolific brain. Another of those declining, has been very successful, and the financial elevation attained has so swelled and enlarged his views and opinions *of himself*, that he conceives, and exhibits in his general intercourse with men, that the concentration of all greatness, wisdom, and intelligence, is always buttoned up in the coat he wears. Men who have reached this state of mind and feelings, have attained a moral condition, when they should quit this mundane sphere, where acts of kindness to their kind is a duty, and pass to those in harmony with their own natures, if such a place exists in the great *immensity of space*, or in the realms where fires perpetually burn. Others expressed themselves in full sympathy with the enterprise, but "feared it would be conducted in the special interest of the office in which the *Quarterly Architectural Review* originated," thus showing in reality, that their objections were founded upon business jealousies. In answer to this, we here state, that this journal will be published independent of *all* and *every* special interest. Its managers, *as such*, have no professional axes to grind through its columns. The broadest, most generous, and universally independent course will be pursued, and no man, whose intellect is not deformed by contraction, in which liberal opinions and just conclusions would cause distress, will have any reason for complaint. To sustain this, we again invite and earnestly desire, that every architect in this city, and on this coast, forward to us *line drawings* for publication in our illustration pages, representing buildings contemplated or erected, diagrams of construction, principles in geometry as connected with architecture, or any other possessing practical merit and adaptation to our columns. If architects generally, really desire to have a liberal journal, the columns of which shall be free to all, the opportunity is offered in this. All drawings and matter will be duly accredited to their authors, and if gentlemen of the profession will interest themselves to a reasonable degree, it will become *their journal of representation* in fact. And if this is not done, the charge of "special interest" should not be made. We prefer publishing illustrations other than our own productions, so that variety and generality of ideas may be presented.

The time has arrived, when the architects of California may, if they will, sustain an enterprise calculated to elevate the profession to its proper standing among the high arts and sciences, and weed out the errors which have too long existed. "At swords' points," is a bad rule. "Playing with edge tools," generally results in cuts and sores. Unity and good-will strengthens all and hurts none. If a man enjoys special, excellent ideas of his own, he becomes greater by making them known, than by locking them up in his individual "knowledge-box," where they are *sure to rot for want of ventilation*. And he who conceives an idea, which contains the germ of merit, does not always reach perfection, and a gain to himself is often secured by seeking the opinions of others equally qualified to comprehend the value of the thing proposed.

EDITOR CALIFORNIA ARCHITECT AND BUILDING REVIEW: On account of the late improvements in artificial stone, perhaps the following notes of experiments will be of use:

Artificial stone has recently been made in Germany by using colophony (common rosin) in the mixture. The proportions given vary somewhat, the following formula being about the average: sand, 20; colophony, 4; caustic lime, 1 part, thoroughly mixed and pressed into molds, and heated to about 300 degrees Fahrenheit. By the use of different colored sand, or with powdered carbonate of lime, various-tinted stone will be produced.

This stone is said to withstand atmospheric influences to a very considerable extent.

In 1871 and 1872, I made a large number of experiments in the same direction, in order to determine if it was possible to make an artificial stone which would have a composition requiring little or no moisture in the manufacture, and when finished have no hygroscopic qualities. Common rosin was selected, on account of its cheapness, and as it was not soluble in water, a stone mass made with this material would remain unaffected by dampness. The stone made in these experiments was fully as strong as the average sandstone.

Such stone is not proof against fire, as heat will cause it to become soft and pliable while hot. The mixture giving the best results was composed of plasterers' gauge-stuff, (plaster of Paris and caustic lime) and mixed with finely powdered rosin, formed in molds and kept at as high a heat as possible, and not destroy the rosin. The exact proportions of the ingredients was not fully determined, in order to attain the best results.

At times earth or mineral colors were incorporated in the mass, and when the stone was hardened and removed from the mold, and polished, presented the appearance of variegated marble.

These compositions could probably be made into a suitable finish for vestibules and wainscoting, where washing would be resorted to for cleaning.

How this material will be affected by other atmospheric influences, is at present not fully determined, as some recent experiments show that sunlight produces considerable change in the character and solubility of colophony, and it is premature at this time to arrive at a correct conclusion as to the good or ill effects of such influences.

This line of experiments was carried still further, and common bricks were operated on by burning rosin into a well-dried brick with a hot iron, so as to saturate the pores and completely cover the brick. Bricks so treated were very slightly affected after soaking in water for a considerable time, and bricks treated in the same manner with paraffine gained nothing in weight by soaking in water.

Plastered walls were also experimented on by burning the rosin into the pores of the plastering by passing a hot iron over the same. These walls were sometimes colored before the application of the rosin, and with good effect. The result was a wall impervious to moisture and quite hard and smooth.

It requires considerable practice to obtain a smooth and evenly-tinted wall by this means.

Paraffine can also be burnt into walls in this manner with better results than when applied in solution, as generally recommended. Either of these modes are excellent where it is desired to have dry walls in damp situations.

Plastered walls can also be prepared by using the colophony in some solvent that will entirely evaporate. Make the varnish as thick as convenient to apply, and use one or two coats, and when dry burn in with a hot iron until the pores of the plastering absorb the material. Walls prepared in this manner can be varnished with a tinted varnish if desired, or they can be painted in oil, but they will not take water-colors readily. Other resins may be used in place of the colophony or mixed with the same, and in some cases are to be preferred.

As colophony is at present a comparatively waste product, and can be obtained cheap, it opens up a wide field for experiments and for inventors, which will ultimately benefit all concerned.

H. T. BESTOR.

Dead Letter, or Unequal Ordinances.

There are some very singular, and not only singular, but unjust and discriminating things in connection with the city ordinances and municipal regulations of San Francisco, that is, as far as their administration is concerned. Some of them may be good and wholesome enactments, and such as should exist: can as much be said for their practical enforcement? Some of them are even *more* than farcical—they are oppressive to some, and mere bubbles to others. One man is *permitted* to ride over or through them at will, and meet no official hand or tongue to interfere or oppose, while another citizen, for attempting the same liberty, is promptly held to strict accountability, and receives punishment in one form or another, unless he can produce and bring to bear some *solid* arguments—some *sufficient influence*. Is this fair? Why shall not every citizen enjoy the same immunities and privileges? And if one may disregard the written law, why may not all? But this equality of rights does not exist. If the whole story could be told, and every incident, event, and transaction analyzed in *full detail*, it is altogether likely that the discovery would be made that there are *means* used, other than those written down in the law-books, by which *some* men obtain permissions and privileges, not accorded to others, who either do not understand the process necessary, or are too *penurious to subscribe* to them. Law-makers are elected for the purpose of enacting good laws and regulations, and law-executors to see that they are enforced. Yet some of these electors, who are properly *learned in the art and science of controlling matters*, virtually set aside and repeal the law creations of those whom they elect to make them, to suit individual purposes and interests. Wonder how the fishermen of Judea, who lived at the commencement of the Christian era, and who proclaimed, "*silver and gold have I none*," would fare in this enlightened age in San Francisco? They used to preach the doctrine of truth and justice, and so do some folks now-a-days, but the *practice* of that doctrine is old and fossilated, and don't apply in these times of enlightenment, in all cases. Official purity is a nice thing in *theory*. It looks well on paper, and sounds beautiful in oral proclamation; wonder how it would appear in strict *universal practice?* We would not advise its sudden adoption, as sudden shocks sometimes do harm, and an abrupt change to universal integrity and pure honesty, might frighten some into the belief that the millennium had come, and that the winding-up time of human events had arrived. Clean hands and pure hearts are excellent virtues, and covetable things to claim and preach about, but they are not virtues of common heritage, nor generally distributed among mankind; nor always practiced by those who have pledged their honor under the solemnity of an oath, to administer laws and ordinances with strict impartiality and justice. Lamentably, the question is pertinent, whether such virtues are not the exceptions, and not the rule?

There are, doubtless, many pure-minded, honest men from time to time elected to public office, who, with all good citizens, abominate the corruptions which so largely abound in official circles. But they are like the righteous men in Sodom of old, so few in number, that they do not exert a saving influence, and hence, to occupy an official position, is to place one's self under the shadow of suspicion. There is no good man on earth, who does not regret the conditions of matters political and official, and who would not rather have it in his power to speak or write words of praise, than pen or utter reflections upon those intrusted with making and enforcing our laws. But the condition and management of public affairs are such, that it would be at the risk and violation of truthfulness to say that honesty, purity, and impartiality even predominated, much less to assert their universality.

And the discouraging features of the case are, that there is no apparent prospect for improvement. With the tumult of each successive election, comes

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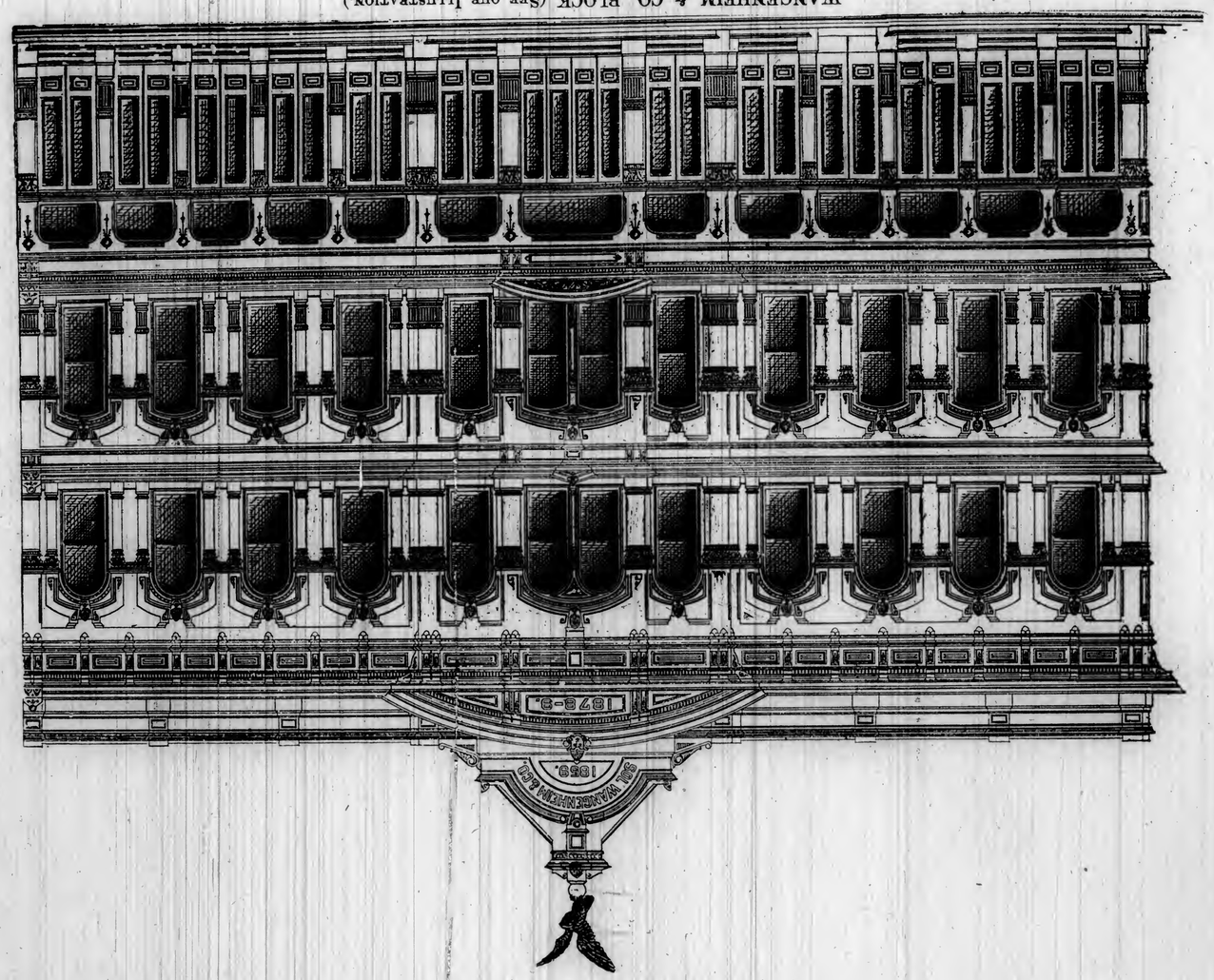
DESIGN FOR A [illegible]TE RESIDENCE.

WANGENHEIM & CO. BLOCK, (See our Illustration.)



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the cry of reform, retrenchment, and improvement, the echoes of which soon die away in the recesses of official position. Men promise and pledge all sorts of better things before their election is assured, after which, all is forgotten, and the new reformers, as a rule, settle down into the slimy grooves in which their predecessors have run, not generally to cleanse them, but to increase their filthiness, by yielding to those temptations which, year after year, have surrounded others with suspicion of official dishonesty, until the opinon is almost universal, that all men are naturally corruptible, requiring only a knowledge of their financial value—the *price* at which they hold themselves—to secure their influence in behalf of any scheme or project, however suspicious or dishonest it may be. Our late local election was run upon the reform hobby, but thus far it has developed a very pigmy and questionable shape; either incompetency, or scheming dishonesty, equal to any that has preceded it, very clearly manifests itself; and nothing has yet appeared, which justifies the hope that the citizens of San Francisco will, in any regard, have aught more to be satisfied with at the expiration of present official terms, than they have had in former years. The commencement looks bad. The great hue and cry has been about, and against, real or imaginary "Big Thieves," "Official Robbers" in high station, etc. Yet the guardians of the people's interests go not after these, but begin the work among gardeners, janitors, school-marms, etc., who have had no hand in the "Great Robberies" which have made tax-payers groan, and brought reproach to the doors of every man holding office under our corporate laws.

This going after the small fish, netting and skinning them, while the loviathans of the financial depths are allowed to swim in deep water undisturbed, presents the appearance, that the *reformers* would like to do some great things, but are at a loss to know where to begin; or, which is quite as likely, beginning where they have, to create the impression that they mean reform, simply to deceive the public mind, while in other matters involving large amounts and greater interests, they play a double part, with a sneer at the masses for their duplicity. The attempts to fortify the city's financial walls with pebbles, while the strong currents of questionable manipulations are undermining the great stone-work of the construction, confirms the reasonable doubt as to the capacity or honesty of those who have secured places of trust.

Another feature of *the* reform manifests itself in the opinions that have been enunciated by the legal oracle of the city government. The rule of law emanating from that source, seems to be, that the city should evade, and refuse to pay any and all claims, where the possible shadow of escape exists. Quibbles and technicalities appear to be the rule. When parties furnish materials or services, to or for the city's uses and purposes, at the instance of those in power, the common right of compensation is involved, and individual citizens should not be made to suffer, because of mistakes or defects on the part of the representatives of the people. And if our municipal government has reached the point, where contract obligations cease to be binding, and men's rights are to be set aside upon technical grounds, in cases where the powers, more than the producers and performers, are at fault, the sooner its corporate charter terminates the better. If the government of the city or State receives services or merchandise and the same is used for its purposes, payments according to right values are due, and evasion upon mythical or constructive grounds, is by no means creditable to a great city. If the city, by popular vote, selects parties to provide for public necessities, and error is committed by them, the burden should fall upon the city or those who perpetrate the blunder, and not upon individual citizens.

We Are Not at All Dismayed

At the contemplation of the peculiar difficulties attending the editing and publishing of a journal in California, where so large an amount of energy and diligent application is required, with so few advantages and aids to assist in the work, particularly in a case like our own, where the field is entirely new and unexplored, never before having been worked by the publication of a similar journal. And whatever of dormant, latent features there may be, they are to be searched for, discovered, and utilized. The spirit of self-sufficiency and opinionated individual judgment is almost universal. From the unclean urchins that ramble around the streets and wharves, sleeping wherever they can find places to stow themselves away, up to the very best circles of society, each and all exercise their individual opinion in matters and things generally, as they appear to each, and are by them respectively received and understood without any regard for established theories, facts, or principles, or the opposite or qualified views of others. Nor is it an easy matter, by any system or chain of argument, however forcible or conclusive, to modify or change opinions once formed upon individual judgment untrained by proper instruction and study. This peculiar disposition of mind is largely manifest in mechanical pursuits. Men who have "picked up" their meager knowledge of any particular trade, or who may have passed through their apprenticeship schooling under the instruction of some *fraud of a mechanic*, never receive proper instruction, and yet generally are very obstinate in their set opinions because founded upon an uneducated judgment; while the qualified and competent mechanic will listen to arguments and reasonings, and gather from them such instruction as they impart, the opposite class, as a rule, are disposed to reject everything not in harmony with their own mistaken conceptions. Again, many "master mechanics" scarcely ever look beyond the limited circle of their own conceptions and conceits, except to disagree with others who entertain views differing from their own; nor is it any uncommon thing to see men who make pretention to competency practicing that which is unsupported by any proper mechanical rule or principle. "Jumping at conclusions," and "sticking to them," are of too common occurrence.

Consequently, a journal which advocates right methods and practices, while it may and will be supported by all intelligent and qualified classes, must encounter the opposition of the other very large class, who are not disposed to accept anything not in harmony with their own perverted notions. And this class of men, in all the affairs of life and business, are always the most loud-mouthed and expressive. The political demagogue will prate and bluster where and when honest statesmen would be ashamed to speak, and the humble-hearted Christian seek his closet and in whispers make his supplications known to his Maker, while the blatant hypocrite kneels at his open window that the passer-by may listen to his mockery of the Deity.

Still, with these and numerous other considerations before us, we begin the year 1880 with no regrets that we have undertaken the publication of this journal, hoping that we may be able to meet the highest expectation of our good friends, who have so cordially wished us good-speed, and that at the close of the year the ARCHITECT AND REVIEW will have established itself so thoroughly in the good opinion of its patrons, that none will be unwilling to renew their subscription.

The Invisible Creation.

In the remarkable paper of Prof. Pierce, on the "Meteoric Condition of the Sidereal Universe," an outline of which was given in the New York *Tribune*, occurs the following: "The aggregate mass of these invisible meteors probably surpasses that of the visible celestial objects." "This bewildering conjecture," adds the *Tribune*, "is not altogether a new one;" and it recalls an eloquent passage written nearly fifty years ago by Isaac Taylor, whose works, replete as they are with science, philosophy and poetry, are strangely neglected in these days. In the work entitled "Saturday Evening," Mr. T., in discoursing of the vastness of the material universe, says: "The invisible material creation, therefore, probably vastly outnumbers the visible, and it may justly be thought that the worlds made known to us by their inherent splendor are to the unseen only in proportion of the chiefs of an army to the thousands that fill rank and file. It is as if from the summit of a tower we were looking by night upon a boundless plain filled with the array of war, and could discern nothing but the gemmed crests of the captains gleaming amid the countless and unseen multitude they were leading on.

CONUNDRUM.—If the devil should lose his tail, where would he go to obtain a new one? To the cheap corner grocery, where they re-tail bad spirits.

Fifty-Vara.

This term is used to designate the one-sixth size of the regular blocks, bounded by any four streets in the city of San Francisco, north of Market street. A "vara" measures 33 inches, fifty of which each way constitutes a "fifty"-vara lot, which in feet and inches is 137 feet 6 inches. In arithmetic calculations fifty is the one-half of one hundred, and two halves, as a rule, make one whole. But this does not apply in calculating one-hundred-vara lots, which requires four fifties to make one one-hundred-vara lot, upon the principle that there are four square inches in each four inches square. A two-hundred-vara lot contains four one-hundred-varas, and sixteen fifty-varas.

A Strong Mucilage.

If to a strong solution of gum arabic, measuring 8½ fluid ounces, a solution of 30 grains of sulphuric alumina, dissolved in two-thirds of an ounce of water, be added, a very strong mucilage will be formed, capable of fastening wood together or mending porcelain or glass.

OVER THE VAST AREA, consisting of nearly three-fourths of the whole surface of the earth, now covered by the ocean—an area of 145,000,000 of square miles—there is ever present an atmosphere of aqueous vapor, which, with the other air, is constantly being carried along by the winds, and at length reaches land. In passing over the land the air becomes changed in temperature and in its electrical state, and ceases to retain the aqueous vapor mixed with it. From vapor the water passes into clouds, and from clouds to rain. Water, or rain, falls on the 50,000,000 of square miles of land—this water having previously been sucked up from thrice that area of sea—and the rain that falls in the course of a single year on the land would, if accumulated, cover its whole surface to a depth of nearly three feet.

"BAY RIDGE was at one time ravaged by malaria. Messrs. Culyer and Adams, the Brooklyn engineers, examined the locality, and found that the surface-water was retained in pockets in rocky soil which could be easily drained. This done, the malaria was materially lessened. This is an instance of how simple remedies can effect great and important results."—*Plumber and Sanitary Engineer.*

The above sustains our oft-asserted theory, that in many localities where the surface surroundings are beautiful to the eye, the sources of disease may lie beneath the green grass on which we walk. We have heard many people wonder why malarious diseases often exist to a considerable extent in localities on our hill-sides and tops and elevated positions, as much or more than in the flat portions, subject to greater moisture and dampness. Our answer has always been, that on the hard formations, where stratifications or shelving underlyings do not carry off the rains and other waters, that the percolations settle down to the dished sub-strata, carrying with them a certain amount of vegetable and animal matter, which in time decomposes and again returns to the surface by exhalation in a vicious and poisonous condition; while in the lower parts of the city, filled in with sand to a considerable distance, the waters sink to a greater depth and do not again return by exhalation to the surface. In the Mission District of San Francisco, Oakland, (Alameda County) and all other similar places where the sub-strata is impervious to water, the rains and washes must operate as above stated. A partial relief is, however, obtained by the insertion of street-sewers. But between these there may be "dishes" in the under formation, and perfect safety is not secured unless these are relieved by drains of some sort—the best of which for this purpose are those formed by hard, broken rock, through the interstices of which the water passes off.

"COMMISSIONER EATON estimates that over *eight million* children are enrolled in our public schools. It is safe to say that one-fifth of our population spend a large portion of their time within school-buildings. These ought, therefore, to be the best-constructed edifices in the country. Unfortunately they are among the worst. Let every one, therefore, give his best thoughts to the problem, how to design a model school-building, and public opinion will insist upon its adoption."

Water in Stone.

The quantity of water capable of being held by common loose sand amounts to at least two gallons in a cubic foot. In ordinary sandstones nearly half that quantity would be contained, and in the best building stones belonging to the sandstone group from four to five pints of water are contained in each cubic foot of the stone in its ordinary state. It will give a better idea of this quantity to say that in an area of such sandstone, in its ordinary state, occupying ten square miles and ten yards in thickness, the quantity of water contained is from four to five hundred millions of gallons. This would fill a reservoir of a hundred acres to the depth of ten feet. If, then, there be beneath the surface, at any depth and between impermeable beds, a space ten miles square of sandstone ten yards thick, this sandstone would be capable of containing between forty and fifty millions of gallons of water; and if these lands were fed from above by the rainfall of a district of a hundred square miles, on which the rainfall was twenty-six inches per annum, of which one-third entered the earth, it would need three years to accumulate the quantity named. It is evident, then, that the underground store of water must generally be greatly in excess of the annual supply. It will be important to remember this in estimating the value of an underground source of springs fed by a drainage area of measurable extent. The underground store, though really dependent on the rainfall ultimately, is rather dependent on the average than on any particular season.—*Ansted.*

The Growler.

From time immemorial, the species of humanity known by the name of "growlers" has existed, and as long as the earth continues they are likely to exist. There are worse characters than the mere ordinary "natural growler," but none smaller or more annoying to sensitive people. They are the little torments which worry life and make thousands of others unhappy. A small splinter inserted in the flesh is not as painful as a broken limb or a severe toothache; but it is a source of perpetual annoyance, and if allowed to remain, will produce festering and perhaps aggravated sores. "Growlers" are the human splinters in the flesh of social and family life, and many are the bad sores caused by their presence in home circles and business connections. I have tried to call to mind some large-hearted, liberal-minded persons addicted to this weakness, but fail to recollect any. Men and women of better impulses and good judgment do not indulge in the offensive habit. It requires a crooked, dwarfed, soured mind to be "over on the growl." The remark has been repeated millions of times, that So-and-so would be a very nice person if he or she was not such an "everlasting growler." And as many times thrice told, children have left parental presence, with *"Mother or father is always growling about something!"* Such people do a vast amount of harm—perhaps innocently on their part—by souring the tempers of their children and others, and destroying peace of mind and comfort to themselves and those whom they really love—*mechanically*; not with that love which causes the fires of true responsive affection to burn brightly; but that lesser kind—*affection without a soul.* The practice is in effect like eating unripe fruit, which "sets the teeth on edge," destroying the taste for every good thing. In some it is an inherent defect, resulting from some natural physical cause—a lack of full development in some of the organs or faculties—while in other cases the disappointments and adversities of life, and contact with unscrupulous men, may sour and contaminate the mind and judgment to the extent of producing a complaining, "growling" disposition. The peculiar feature of the case is, that those addicted to the practice are oblivious to the fact, and the meanest growler that lives will swear that he or she *never growls.* If one of this sort sees another prospering more than himself, he begins to complain and growl because he is less successful than his neighbor—failing to realize that his lack of success arises more from the errors in himself than superiority in the other. *He* might have won that which his neighbor has secured, but for his own peculiarities, which *drive* people from him, and then he growls because they go. To secure the appreciation of others, the exercise of the spirit of appreciation is a necessity on our part. The greater portion of the joys and discomforts of life are reflected from our own acts. Kindness to others generally returns to ourselves with interest, and the pathway of time is lighted by the shining back upon ourselves, of the golden rays of good acts and pleasant words to others. When the sun sinks beneath the western horizon, there would be perpetual darkness upon the face of the earth, until its eastern appearance again dispelled the gloom of night, but for the reflection of its light upon the orb of night, and through its silvery rays sending moonbeams to earth. So may we, by kindness and the absence of growling, distempered dispositions, render our lives more pleasant to ourselves and agreeable to others.

Charcoal as an Absorbent.

"The absorptive power of charcoal is well known in the arts. The capacity in this direction is most remarkable. Accurate experiment has proved that in twenty-four hours it would absorb twenty times its own volume of ammoniacal gas, eighty-five times its volume of muriatic acid gas, and sixty-five times its volume of sulphurous acid gas. It is this remarkable quality which makes it so valuable in destroying odor, taste in many substances, and preserving meats, vegetables, and fruits from rapid decay. Its use as a filter in cisterns is well known; and its value here depends upon the same quality. It separates and appropriates to itself the decaying matter and other impurities in water—rendering it pure and sweet. If placed upon the surface of the soil, it will gather from the air moisture and gases, and impart them to the growing plants. On the same principle its value in the barn-yard, stable, and hog-pen, as an absorbent agent, is incalculable. When used for this purpose, to form the basis of manure, it should be in the powdered state." Charcoal dust is also equal, if not superior, to all other materials for the purpose of deadening sound in floors.

WE hope that every subscriber to and reader of this journal will exert himself to increase its subscription list, for as promised, *so we earnestly mean,* that *increased patronage* will insure *improvement* in *every department.* It is our determination to omit neither expense nor labor to bring it to a *high standard of excellence;* and we respectfully ask our friends to help us by extending and increasing its circulation. Every intelligent person understands perfectly well that a work of this kind cannot be sustained without a sufficient number of subscribers. We have stated that we intend to secure *ten thousand subscribers,* and have so determined, although some may doubt the sincerity of the proposition, and others even wish that such a result may not be possible. But if earnest work, untiring exertion and honest effort will accomplish it, it will be done. We shall close our eyes and ears to all songs and signs of discouragement, well understanding the great labor before us, and will work earnestly and perseveringly until the shadows of the setting sun of life fall about us, or other greater prosperity come to us. This journal should be supported by every good citizen as a *home production,* being the *first of the kind published on this coast.* So far, it has been excellently well received, and its future improvements will of certainty render it still more worthy of support. As resources come to hand, its columns will contain matter full of instruction and valuable information.

Zymotic Contagion.

Professor Tyndall asserts that diseases are propagated, not by effluvia or sewer-gas, but by solid particles discharged into the atmosphere by currents of air or gas. This he proved by the following experiment: He cut up a piece of steak, steeped in water, heated it at a little above the temperature of the blood, then strained off the liquid; in a short time this fluid became turbid, and when examined through a microscope was found to be swarming with living organisms; by the application of heat these were killed, and when the solution was filtered he obtained a perfectly pure liquid, which, if kept free from particles of dust, would remain pure for an unlimited period; but if a fly were to dip its leg in fluid containing living organisms and then into the pure liquid, the whole would be swarming with animalcula in forty-eight hours.

Building Intelligence.

The following report and statements, in reference to building improvements in this city, very clearly presents the condition of the market in connection with the building business in San Francisco. The last report appearing in the *Quarterly Architectural Review* was made up to the 17th November, 1879, and included all improvements reported to this office. But at that time there were improvements under way in the western and southern parts of the city of which no return was made, to the number, perhaps, of twenty to thirty buildings. We should like to make our reports full, complete, and *exactly correct;* but until they are overcome, we labor under four special difficulties:

First. Some architects are reluctant to expose the amount of work in their hands, unless the showing represents a large amount of business. When clients are few and engagements small, they prefer to withhold all statements. But as these reports are of general interest to the public at large, and the fact that any particular office is "running light" does not reflect to the discredit of its proprietor, but simply shows the restricted condition of operations, we think the delicacy or pride which induces a withholding of statements an error; and we hope that the architects of this city will so consider it, and kindly furnish all information in their possession.

Secondly. Others are reluctant, because, as they say, that letting it be known that they were sketching certain improvements, other parties have stepped in and "cut them out" of the work. To have anything of this kind happen is certainly very aggravating, and by no means creditable to the guilty parties. We have *good reason* for believing that such things have been done in this city; and as far as the influence of this journal may extend, it will seek to correct this and all other unprofessional practices. But as our request is only for information in cases where improvements have reached contract conditions—a point where interference by others is impossible—it is hoped that reports will be sent to us promptly, with this renewed assurance that PERFECT FAITH will be observed by us upon all points and matters of information not intended for publication.

Thirdly. A very few refuse to extend any information, with expressions as gruff and ill-favored as their own natures. "It is nobody's business what I am doing." "I will give no reports to anybody." Those who prefer feeling and acting so are welcome to the indulgence. Our satisfaction is to know that the number of this kind is the *very small* exception—so far as known to us only *two* of all the architects in this city.

Fourthly. Irregularity of procedure—that is to say, quite a number of contractors prefer to build houses "without an architect,' upon the grounds that when a man enjoys absolute control, there can be no dispute as to quality or quantities. And defects are less apparent to a pair of eyes in the head of *one* who is financially interested in his own behalf, than when the "prying eyes" of an architect are around to detect faults and correct errors. And when opportunities present themselves, they secure engagements with owners and fix up plans as best they can, from tracings or plans withheld by them, remaining in their possession after the completion of buildings, in cases where the architect has been neglectful in calling in all drawings, specifications, etc, at time of settlement; or from what they may have "picked up" in the course of their building experience, they may venture to pencil out an original plan of their own. And owners, ignorant of the numerous involvements and the jeopardy in which they place themselves, consent to such arrangements—often to "pay dear for their whistle." If architects, with all their special application, study, and experience, sometimes make mistakes, is it not almost certain that those who spend no time in *special study* of the profession, and whose interests are centered in the most economical manner of erecting buildings, will commit gross blunders in planning, and of certainty in defining and executing the many important sanitary features, so essential to health and life itself? Such cases, of course, are not reported, but must be otherwise ascertained.

BUILDINGS IN PROCESS OF CONSTRUCTION, SAN FRANCISCO.

Brick warehouse, Brannan and Fifth sts. Owner, Thos. Bailey; architect, P. R. Schmidt; contractors, Walker & Grant. Cost, $8,500.

One-story frame, Capp and Twenty-second sts. Owner, Geo. Marsh; architect, P. R. Schmidt. Cost, $1,000.

Three-story frame tenement, Folsom and Twelfth sts. Owner, E. Kromode; architects, S. & J. C. Newsom; contractor, Wm. McDonald. Cost, $3,500.

Four frame tenements, South San Francisco. Architect, H. T. Bestor; contractor, John McCann. Cost, $4,000.

Two frame dwellings, Hyde near Geary st. Architect, H. T. Bestor. Cost $7,000.

Two frame buildings, Washington near Devisadero st. Owner, Wm. Warner; architect, H. Geilfuss; Contractor, W. Pluntz. Cost, $4,500.

Brick building, 30 x 40 feet, three stories, north side of Washington st., between Dupont and Stockton sts. Owner, Whi Men (Chinese); contractors, Smith & Downs. Cost, $4,500.

Brick building, 35 x 65 feet, three stories and cellar, Stockton near Geary st. Owner, Mrs. Lucy Watterman; architect, John Marquis. Cost, $20,000.

Frame residence, south-west corner California and Gough sts. Owner, Jos. Brandenstein; architect, ——; contractor, Messrs. Mahoney. Supposed cost, $40,000 to $50,000.

Brick building on O'Farrell st., near Stockton st. 137 ft., 6 in. frontage; total depth, 137 ft. 6 in.; contains large hall, 64x96 ft. in the clear, with 36 ft. height of story; four lodge-rooms above; large hall, 32x46 ft.; 20-ft. stories, with ante-rooms; stores in front, with 40 rooms above the stores; cellars under all, 14 ft. in the clear. Owner, Wm. Shields; general superintendent, A. M. Gray. Cost, $40,000.

Brick building on south side of Mission st., near Third. 86 ft. frontage, 95 ft. depth; 3 stories in front, including stores on main floor and moderate-size hall on upper floor; a large hall on second floor, in the rear, 68x82 ft., with 28 ft. height of story. No cellar. Owner, Geo. Dickson; general superintendent, A. M. Gray. Cost, $19,000.

Brick building, north-east corner Stockton and O'Farrell sts., with cellar, and three stories above.

Brick building, west side of Stewart st., 46x90 ft., two stories. Owners, Wright & Boone; contractor, —— Brown. Cost, $10,000.

Brick building, north side of Pine st., near Kearny, Kong Chow (Chinese) Asylum, two stories. Frontage, 17 ft., depth, 35 ft. Architect, Bayless; contractors, Smith & Downs. Cost, $3,250.

Frame building, 28 ft. 9 in. by 60 ft., Ritch st., near Townsend. Owner, E. Barry; contractor, John McCann. Cost, $3,200.

Chapel, Post st., bet. Buchanan and Webster, 36x46 ft. Superintendent, H. G. Pratt. Built by day labor.

Frame dwellings, east side Folsom, near Twelfth st. Two stories and basement.

Frame building, north side of Folsom, near Harriet st. Store on first floor and tenement on second floor.

Two frame buildings, rebuilding, damaged by fire in November last, Howard st., near Sixteenth. Owner, John Hogan. Cost, $2,500.

Frame building, Clay st., bet. Devisadero and Broderick st. Owner, W. S. Lawton; architect, E. Swain; contractors, Girvin & Sylvester. Cost, $5,000.

Three frame buildings, Sacramento st., bet. Steiner and Pierce sts. Owner, B. Moore: contractor, A. Jackson. Cost, $7,000.

Four frame buildings, Post st., bet. Gough and Octavia. Owner, Dr. D. Vandenberg; contractor, W. H. Wharff. Cost, $15,000.

OAKLAND.

Masonic Temple, brick, 65x105; north-west corner Washington st. and Twelfth. Architects, Wright & Sanders; brick contractor, Geo. Nagle; carpenter contractor, Farnell; stone-work, Pfeiffer; granite-work, Griffith; iron-work, John Sims. Cost, $75,000.

Two-story frame, Webster and Durant sts. Owner, P. Thompson; architects, Mathews & Son; contractor, McDonald. Cost, $4,000.

Two cottages, Gough and Eighteenth sts. Owner, A. M. Wachs; architects, Mathews & Son; contractor, McDonald. Cost, $4,000.

Two cottages, Gough and Eighteenth sts. Owner, A. M. Wachs; architects, A. Mathews & Son; contractors, Hill & Hicheox. Cost, $3,600.

Frame cottage, Twenty-first st., near San Pablo road. Owner, Mrs. A. Smith; architect, Otto Kleeman; contractor, Rundle & Ohme. Cost, $2,000.

ALAMEDA.

Residence and stable, Central and Broadway sts. Owner, Mr. Barton; architects, S. & J. C. Newsom; contractor, Kendle; plumbing, D. Bush; plastering, H. Fisher; painting, Cal. Paint Co.; elaborate iron cresting and fence-work, Bigelow & Morris. Total cost, day-work, $25,000.

Two-story and basement frame, Buena Vista and Schiller sts. Owner, Wm. B. Rand; architects, S. & J. C. Newsom; contractor, McDonald. Cost, $5,000.

VALLEJO.

Brick building, two stories, 25x75; architect, Wm. Patton. Cost, $10,000. Numerous "contemplated" jobs have been reported to us; but we do not propose to publish any but those under contract.

SACRAMENTO.

We condense the following from the Sacramento *Bee,* showing the extent of building improvements made in the *Capital* City during 1879:

Under the superintendence of A. A. Cook, architect—

Seventeen improvements in the city, at a total cost of	$59,890	
Outside of the city limits	18,100	
Nine improvements, no value stated		
		$ 77,990
Under the superintendence of N. D. Goodell, architect—		
Twelve improvements in the city, total	$46,800	
utside city limits, County Hospital	40,000	
" " two improvem'ts	5,950	
		$ 92,750
Under the superintendence of Jos. Ough, architect—		
Six jobs in the city	$17,200	
Twenty-four improvements, no architects	58,745	
Improvements with no value stated, eighteen. Placing the cost of these at an average value of the twenty-four where no architects were engaged, gives the sum of	44,064	
Grand total		$290,749

BERKELEY.

Frame residence, one and one-half stories, Dwight av. Owner, Mrs. Foreman; architects, S. & J. C. Newsom; contractor, Scott. Cost, $2,800.

Market Report.

THE GLASS MARKET.—Stock on hand sufficient and in excess of demand. Prices lower in this than in the Eastern market. Present demand very light.

HARDWARE.—Former quotations in last number of the QUARTERLY REVIEW fully maintained, with an upward tendency. The rise in pig iron, the base of all hardware products, strengthens the prices of everything made from iron; but at present rates, which are largely in advance of those ruling up to November, 1879, prices are considerably below those maintained in 1872 and '3.

LUMBER.—The following list of prices firmly maintained. The demand is light; a usual thing at this season of the year, but all are hopeful for the spring trade.

OREGON PINE.		
Common Rough, up to 40 feet, per M feet		$18 00
" 40 to 50 " "		19 00
" 50 to 60 " "		20 00
" 60 to 70 " "		21 00
" 70 to 80 " "		22 00
Refuse Rough		14 00
Common Rough, sized with planer, $2 additional on above rates, per M feet.		
No. 1 Flooring, 6 inches and over, and Stepping	per M feet	26 00
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring	per M feet	27 50
Rough Clear for flooring, $1 less than above rates, per M feet.		
Second quality Flooring and Stepping, per M feet		21 00
Ship Plank, rough	per M feet	25 00
" planed 1 side	"	28 00
" planed 2 sides	"	30 00
Deck Plank, rough	"	28 00
" dressed	"	32 50
Laths	per M	3 50
Cedar Shingles	"	....

REDWOOD.		
Rough Merchantable	per M feet	18 00
" Refuse	"	14 00
Surface, No. 1	"	26 00
Surface, 1 x 8	"	25 00
" 1 x 6	"	24 00
" No. 2	"	18 00
Rustic, No. 1	"	27 50
" No. 2	"	22 50
" short, 8 to 10 feet	"	20 00
" " under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over	"	24 00
" " 7 to 11 feet	"	22 50
" " under 7 feet	"	18 00
" " No. 2	"	16 00
" Beaded, 12 feet and over	"	26 00
" " 7 to 11 feet	"	22 50
" " under 7 feet	"	18 00
Half-inch Surface	"	25 00
Pickets, fancy	"	20 00
" rough, pointed	"	14 00
" " square	"	14 00
Siding, ½-inch	"	20 00
Shingles	per M	2 00
Battens, ½-inch	"	75

California-manufactured White Lead.

We intended to avail ourselves of offered opportunities to visit and examine the extensive "Pioneer Lead Works," located in this city, in time for notice in our first *monthly* issue; but have been unable to do so.

It will always be a pleasure to us to visit and notice manufacturing and producing establishments of all kinds, and greatly so when their success is demonstrated beyond doubt or question. There are no interests of more permanent value to the State than successful manufactories, particularly those which consume the crude product of our hills and valleys, in the production of articles of common or special uses. Nor can it be less gratifying to every good citizen than to ourselves, to know that manufactories on the Pacific Coast can successfully compete with those of the Eastern States and Europe, in producing the things we need for use in house-building and for general purposes. And we doubly admire the good sense of those who enter into such operations with the determination to produce "the best article of its kind manufactured anywhere."

The reputation of blankets manufactured in this city is world-wide, and so we hope it may be with all other manufactured productions of this State.

BRICKNELL & COMSTOCK'S PUBLISHING HOUSE. Any of the numerous and excellent publications emanating from this well-known establishment can be had at New York prices through the office of this journal, where catalogues of their extensive series of works, embracing everything in the architectural, building, mechanical, and other lines of operation, and endless other works on various subjects, can be seen.

THE HOTTEST SPOT ON EARTH.—One of the hottest regions on the earth is along the Persian Gulf, where little or no rain falls. At Bahrin the arid shore has no fresh water, yet a comparatively numerous population contrive to live there, thanks to the copious springs which break forth from the bottom of the sea. The fresh water is got by diving. The diver sitting in his boat, winds a great goat-skin bag around his left arm, the hand grasping its mouth; then takes in his right hand a heavy stone to which is attached a strong line, and thus equipped he plunges in and soon reaches the bottom. Instantly opening the bag over the strong jet of fresh water, he springs up the ascending current, at the same time closing the bag, and is helped aboard. The stone is then hauled up, and the diver, after taking breath, plunges again. The source of the copious submarine springs is thought to be in the green hills of Osman, some five or six hundred miles distant.

POPULATION OF THE GLOBE.—It is estimated that this little globe of ours has a population of 1,421,000,000, and that 35,693,350 worthy men, women and children die annually, or about 97,790 persons each day. It is gratifying to add that about 70 new beings are opening their eyes to the sunlight every minute, which gives 104,800 per diem, showing that the doctors are busier than the undertakers.

WHY is a man's bald head like the North Pole? Because it is a great White Bear place.

A NEW FIELD FOR WATER GAS.—The increase of rabbits in New Zealand has been so great that it has been seriously proposed to introduce the weasel and the polecat to keep down their excessive numbers. An "exterminator," however, has been invented, which seems to be effective. It consists of a machine for generating and forcing into the burrows carbonic oxide gas. On reaching the burrows, a flexible tube, about five feet in length, is inserted into the hole, and the gas is forced into the aperture. The entrance to the burrow is then stopped, as well as all holes and fissures that can be found. In a few seconds, a great hubbub is heard inside; but this quickly subsides. The burrow is dug open after a short time, when the dead bodies of the rabbits are found, huddled together in every corner. The exterminator has been pronounced a perfect success.

DEADENING OF WALLS TO SOUND.—The report of a committee of a Wurtemburg association of architects upon the deadening of ceilings, walls, etc., to sound, gave rise to considerable debate, after which the following conclusions were reached: The propagation of sound through the ceiling may be most effectually prevented by insulating the floor from the beams by means of some porous light substance, as a layer of felt, a filling of sand, or of stone-coal dust, the latter being particularly effective. It is difficult to prevent the propagation of sound through thin partitions; but double unconnected walls, filled in with some porous material, have been found to answer the purpose best. Covering the walls and doors with hangings, as of jute, is also quite serviceable.

HELIOTYPIC PRINTING PLATES.—Take of glue (*Kœlner leim*) one kilogramme; allow it to swell for twenty-four hours in some cold water, and then liquefy the pieces at a temperature of 25° R., adding twenty grammes of potassium bichromate. Pour this solution over a suitable square of plate-glass, previously coated with ox-gall, and provided with a rim of putty, and allow to dry in a dark place. After the lapse of two days, the glue tablet can be readily detached. Now place on the smooth surface the transparent negative, drawn in bold lines and strong contrast of lights and shades, or made of perforated card-board, and expose to the sunlight for from one to three hours. After the exposure, glue the tablet, with its back side, to a smooth wood block, moisten the face with water, and finally remove, by means of a moist cloth, all glue not hardened under the influence of light, when the *cliche* will show the drawing in perfect relief, with a smooth printing surface. After completely hardening the *cliche* in the light, it is ready to be used in the printing-press. Galvanoplastic copies of this plate may also be taken in the usual manner.

AMERICAN OVERWORK.—One need not dwell upon the desirableness of calm and seclusion for the production of the best literature. With individuals, as with nations, stirring periods of action are not favorable to idealistic art. There is much unfairness, however, in the blame to which public men in this country are subjected for their overwork. This is rather a matter of necessity than of choice. People in the Old World largely inherit their means and methods from their forebears. New men, even there, often have the habit of overwork fixed upon them by the time their footholds are secured. But the statesmen and thinkers of Europe start with assured incomes more commonly than do our own, and are not forced to earn their bread as they go along. Our Wilsons, Evartses, Curtises, have had to consider first the means of living, and to be statesmen or writers in addition. Our Eastern Brahmins, happily, have had, for the most part, resources, which they have enlarged by the help of such gentle, scholarly pursuits as the service of a university affords. They have shown themselves quite willing to indulge a spirit of restfulness and calm. So long as Americans who do not inherit estates have the Anglo-Saxon pride and domestic tenderness, they will be tempted to do work elsewhere than in a garret, and rarely be able to drive from their minds the thought of its effect upon an income-paying constituency.—*E. C. Stedman on Bayard Taylor, in Scribner for December.*

It often seems more difficult to preserve a blessing than to obtain it.—*Demosthenes.*

Words of the Wise.

Great thoughts originate from a large heart.—*F. W. Robinson.*

Inspiration always waits upon the busy.—*Josh Billings.*

The more gross the fraud the more glibly will it go down, and the more greedily will it be swallowed, since folly will always find faith whenever imposters find impudence.—*Colton.*

A great man under the shadow of defeat is taught how precious are the uses of adversity; and as an oak-tree's roots are strengthened by its shadow, so all defeats in a good cause are but resting-places on the road to victory at last.—*Chas. Sumner.*

The grand difficulty is so to feel the reality of both worlds as to give each its due place in our thoughts and feelings—to keep our mind's eye and our heart's eyes ever fixed on the Land of Promise without looking away from the road along which we travel towards it.—*Hare.*

"History is the test of time, the light of truth, the life of memory, the rule of life, the messenger of antiquity."

The spirit of liberty is not merely, as multitudes imagine, a jealousy of our own particular rights, but a respect for the rights of others, and an unwillingness that any man, whether high or low, should be wronged and trampled under foot.—*Channing.*

We will not accomplish much without zeal and enterprise. But the mistake is often made of supposing that zeal is hurry, rush, recklessness, and indifference. It is not so; steady momentum is often more effective than unrestrained vigor.

Men trust rather to their eyes than to their ears; the effect of precepts is therefore slow and tedious, whilst that of examples is summary and effectual. —*Seneca.*

Requirements for the Drainage of Every House.

In the light of present knowledge, the following seem to us the essential requirements for the drainage of every house. Time and further experience may suggest other features or modifications of these:

Every vertical soil or waste-pipe should be extended at least full size through the roof. No traps should be placed at the foot of vertical soil-pipes to impede circulation. Traps should be placed under all sinks, basins, baths, wash-trays, water-closets, etc., and as near to these fixtures as practicable. All traps under fixtures, wherever practicable, should be separately ventilated, in order to guard against syphonage. Such vent-pipes should not branch into a soil-pipe below where any drainage enters it. In some cases it is preferable to carry it to outer air independently. Rain-water leaders should not be used as soil-pipes, and when connected with house-drains they should be made of cast-iron in preference to galvanized sheet-iron or tin, there being less liability of corrosion. Joints should be gas and water tight, to preclude possibility of drain air entering open windows. No safe waste should connect with any drain, but it should be carried down independently to a point where its discharge would indicate the existence of a leak or any overflow above. No waste from a refrigerator should be connected with a drain. Unless the water supply is ample, so that it will rise to every part of a building, insuring at *all* times the proper flushing of fixtures and traps, a cistern should be provided into which the water will rise at night, or into which it may be pumped. Said cistern should be large enough to hold an ample daily supply, be kept clean, covered, and properly ventilated. The overflow-pipe from it should never be run into any drain under any circumstances. The supply for drinking-water should not be drawn from it, but from a direct supply—*i. e.*, direct from the street main.

Water-closets should not be supplied direct from street pressure, or by a pipe from which branches are taken for drinking-water. Where the valve closets are preferred to those that are supplied from a small cistern immediately over them, then the supply should be taken to a storage-tank, from which it can be conveyed to the valves on the closets, thereby insuring an equable pressure, and securing more reliability in their working.

All drain-pipes within a house should be of metal in preference to stone-ware, owing to the liability of the latter to crack, and the difficulty of keeping the joints tight. It is best to run them along the cellar wall or ceiling with a good incline. They should never be hidden underground as then leaks will not be perceptible. In some places it is common to paint pipes white, so that any leakage will show itself to the most careless observer. All drains should be kept at all times free from deposit; and if this cannot be effected without flushing, special flushing arrangements should be provided, so as to effectually remove all foul matter from the house drains to the public sewers. All drains should be laid in a straight line, with proper falls, and should be carefully jointed and made water-tight. No right-angled junction should be allowed.

A drain passing under a dwelling-house should be constructed of cast-iron pipes, with lead-caulked joints, laid so as to be readily accessible for inspection. Whenever dampness of site exists it should be remedied by laying subsoil drains, which should not pass directly to the sewer, but should have a suitable break or disconnection. Water supply and drain-pipes should be concentrated as much as possible, and not scattered about a building. Horizontal pipes are objectionable. Plumbing fixtures should not be hidden behind walls and partitions where their condition is never apparent. They ought to be made easily accessible, and so situated that any leak will be readily detected.—*Carpentry and Building.*

AND BY THE WAY, there is no class of people so utterly stupid about dwelling-houses as these very farmers. If one of them acquires wealth—and nearly all of them do—and he sets about building a house worth from ten to fifteen thousand dollars, he is at once both architect and builder. He looks back at the time when his mother spun, wove and made for him a suit of clothes; which feat of industry and ingenuity was very commendable in her, considering the time in which she lived. He has inherited her genius; therefore he can design a dwelling. He designs and builds the house, hiring his workmen by the day; and truly the house gives evidence that the man inherits his mother's genius. In looking at it you think of the time when this would-be architect was a boy, dressed in his suit of "linsey-woolsey," the pantaloons and the sleeves of his coat too short for him by several inches, and his entire dress bearing evidence that his mother, however industrious and economical she may have been, was not a tailor. It is not the outward appearance of the houses erected by these men that is so condemnable. It is the utter lack of fitness, internally, for that which they were intended. But the farmer is not alone in this matter. Not many weeks since it was our privilege to make the acquaintance of a wealthy resident of Jersey City, who exhibited to us his possessions with a good deal of pride. Coming in front of two houses which we had never seen surpassed for ugliness, not even in Central or Eastern Pennsylvania, we inquired the name of the architect. "Oh," said he, "I drew the plans myself." The truth is, that everywhere, even in cities and villages, men utterly ignorant of the principles of architecture are acting in the capacity of architects in erecting their own houses. Not one of these fellows would attempt to cut a pair of pantaloons for himself, and if he did, he would not be persuaded to wear them. If sick, he sends for a doctor; and if in legal difficulty, he consults a lawyer; but when it comes to designing a house, why, that he understands by a kind of inspiration. Because of this general practice, we publish designs for cheap houses. We hope no man will ever duplicate one of them; not because the design is not in itself a good one, but because the chances are that it is not just what he wants. But we beg him to duplicate any one of our designs rather than to undertake getting up a plan of his own. No, if you are about to build a house of any kind, call in a competent architect. Act like a man of sense in this as you do in everything else. When you can cut and make your own clothes, shoe your own horses, be your own physican and lawyer, then you may be competent enough to design a house, and not until then.—*American Builder*, 1870.

The California Architect and Building Review.

VOLUME I. NUMBER 2. | SAN FRANCISCO, FEBRUARY 1, 1880. | $1.50 per Annum, in Advance. Single Copies, 15 Cents.

The California Architect
— AND —
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO

JAMES E. WOLFE, Editor and Manager.

Sent to any part of the U. S., postage paid, at $1.50 *per annum, with extra cost of postage when sent to Foreign Countries.*

Entered at the Post Office at San Francisco, Cal. as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

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A Card from Architects.

Believing that a well and ably conducted journal, devoted to Architectural, Mechanical, Sanitary, Scientific, and other kindred matters and subjects, is a necessity in this city, and judging from what has appeared in the QUARTERLY ARCHITECTURAL REVIEW, published by Messrs. Wolfe & Burnham during the current year, both in illustration plates and reading contents, we are led to the belief that the CALIFORNIA ARCHITECT AND BUILDING REVIEW, proposed to be published by the San Francisco Architectural Publishing Company from and after January, 1880, will be worthy of general support and encouragement, and that it will supply a long-existing want on this coast. *We therefore pledge our cordial sympathies personally, and hope that the enterprise will receive kindly recognition and liberal support from all Architects and Builders on the Pacific Coast, and from the public generally.*

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The Situation.

It is always more pleasant to review the bright and hopeful side of every question, and if need be a little pressing on the line of facts, in favor of the cheerful and encouraging, is justifiable. But sometimes unfavorable circumstances and conditions crowd so hard in the opposite direction, that it is difficult to resist them, and a yielding must be submitted to. We most heartily wish that existing facts would sustain us in reporting "lively times in all directions," but instead of this, we are compelled by the state of the case to say that never in the history of California, has there been such an entire and decided prostration in the building business in San Francisco as exists at the present time. During the past two years or more, great depression and dullness has prevailed, with intervals of moderate activity for a short space of time. But the year 1879 will be remembered by architects, contractors, mechanics generally, and dealers in house-building materials, as by far the dullest ever known on this coast—except a little break in the clouds of stagnation during the months of October and November, which gave promise of better times coming, only to dash to earth the hopes so raised, by a falling off and settling back of building prospects, into the condition of inactivity which had marked the earlier months of the year. It is safe to say that the gross receipts of the architects of this city for 1879 will not, on an average, pay office expenses. So great has been the pressure that many have dismissed their draughtsmen and assistants, and some have even vacated their offices, rather than keep them open at a monthly loss.

The present year has been looked forward to with hopeful anticipation of improvement, which we sincerely hope may be realized, but if the amount of work offering in the past month of January is accepted as a criterion for the balance of the year, the winding up of its twelve months will present a worse condition of things than the past, or any preceding year. Still, with this unfavorable showing, there is promise for the future in the fact that a great many owners talk of doing something, and business talk is generally the forerunner of business action; and it may be, that in our next issue we shall have a more pleasing recital to present our readers.

We have stated matters just as they appear at the present time. It would be a much more agreeable task to have it in our power to write up a glowing account of great business prosperity in San Francisco, but we cannot do so now, but shall hail with delight the time when the condition of things will justify it. Under all circumstances we shall adhere to our established rule, of relating facts just as they exist, always preferring the cheerful and hopeful, but when dark days and gloomy times surround us, we shall accept the situation, and regulate our statements accordingly. Most cheerfully and gladly will we chronicle the appearance of better times in California, in the architectural and building business, realizing that dullness in this direction indicates general dullness in all branches and lines of trade and business, attended with scarcity of money among the masses, and corresponding discomforts in common life. For when there is general activity in trade, and merchants and dealers are making money, many of them employ their surplus profits in the erection of homesteads, business or tenement property, from which the laboring classes and dealers in building materials derive benefits, and the money thus circulated, still further enriches those who cause it to be circulated, by increased trade and profits. For when contractors and working-men are employed, and receive their pay and wages, they generally spend their money freely; but when idle, with no resources to fall back upon, they must of necessity, economize in all possible ways.

From the Facts

Stated under the head of "Our Sanitary Department," is it not high time that the professional men of this city and coast—architects, physicians, engineers, and others—should inaugurate a movement of similar character to that appearing in extracts quoted under the head referred to? The vital importance of the question is as great upon the western as upon the eastern slope of our country and in Europe, and the communities of this coast are daily suffering from the evils so fully set forth in said article, as much as the inhabitants of any other similarly situated and populated State. And it is altogether proper that architects should be the first to move in the matter, as into their hands is committed the great trust of providing against the evil under consideration, as far as the homes and dwelling places of mankind in San Francisco are concerned. And they, of all men, should fully and correctly understand every feature and principle involved. And if a concerted and organized movement is made by gentlemen of the architectural profession, upon broad and liberal grounds, with open doors to all other professional and intelligent parties, it is safe to say that the physicians, civil engineers, and others, will gladly lend the influence of their experience, education and learning in the discussion of questions that may arise. It is not presuming too much to say that no member of the profession has acquired a knowledge and understanding of the whole subject-matter so thoroughly that he needs no further information. If the learned and able men of the Eastern States feel the necessity of combined, intelligent discussion, would it not be extreme arrogance in us to say that we, individually and collectively, "know it all," and need no further light upon the subject? And if, through a lack of proper knowledge on our part, sickness and death should result to others, do we not thereby become the authors or causes of sorrow and grief in families, and ourselves virtually criminal in fact, if serious results occur through ignorance or lack of proper care on our part? Architects generally dictate what shall be done, and the manner of its doing, in almost all respects, and is it not a cruel outrage toward owners to be compelled, by the order of things, to accept such dictations, while somewhere in them may be hidden sources of great evil, from which loved ones may be made to suffer. That "best judgment" was exercised, is no sufficient excuse for a wrong in this connections Ignorance of law is never admitted as an excuse for its violation, and as there are natural laws controlling animal and human life, and material things, men who administer them should be thoroughly conversant with their principles. To attain this knowledge, no better way can be suggested than that an assembly, convention, or properly organized society be formed, with liberal rules and regulations, and the great questions of sanitary import freely, generously and fully discussed. If this is done impassionately, with the view of arriving at right conclusions, great good will be effected. We shall be happy to report in our next issue that the suggestions herewith made have culmiuated in a healthful movement in the right direction. We hope that Messrs. Remer, Wright & Sanders, Williams, McDougall, Welsh, Mooser, Marquis, Huerne, Curlett, O'Connor, and others of the leading men of the profession, will issue a call for the purpose, and succeed in forming an organization which will be permanent, and of great benefit to all members of the profession, not only in this city, but on the entire Pacific Coast, so that, should our Eastern friends effect a "National Health Organization," California may be prepared to co-operate with them, and send representatives who will fitly, wisely and intelligently represent this coast.

A Learned and Prominent Physician

Answered our request for an article for this journal, of sanitary import, with: "It is only a waste of time and paper. The public mind is at ease on the subject, and entirely indifferent and unwilling to accept the best and wisest that can be said or written, and manifest a stoical indifference to the most startling recitals of facts. Physicians, scientists, and all the architects in Christendom may write until their eyes become blinded, and still the public will pay no attention, and practically treat

the whole matter as an often-told story, possessing no interest worthy their consideration."

There is too much truth in the foregoing statement. A spirit of unconcern seems to control the masses, and when facts are stated, clearly demonstrating the dangers which lie in certain directions, instead of being warned by and avoiding them, they pursue the opposite course, and place themselves in the way of the very dangers against which they are advised. We have no desire to create any undue excitement or alarm, or cause a rush of public sentiment in reference to sanitary matters. But the volume of testimony which is daily accumulating in substantiation of the injurious effects of defective sewerage and plumbing work, through which means the foul gases are forced or admitted into dwellings, should awaken an intelligent and deeply interested concern in the minds of all heads of families. It is a singular fact that when architects, or intelligent contractors, are called in to determine the cause of certain effects, and they recommend the doing of some certain thing for the purpose of removing the cause complained of, the first question asked then is, "How much will it cost?" and if the expense is stated to be more than a nominal sum, the reply follows: "Well, I guess we will let it go for a while." Consequences are overlooked, and rather than make the necessary change to produce entirely healthful conditions, without considering the cost, the chances are ventured upon for present economy's sake, and the result not unfrequently occurs that a hundred times the amount saved is paid out in medicine and doctors' bills, if the undertaker does not come in for a share of the money thus unwisely reserved. People become offended when a laugh is indulged in at their expense; but physicians often enjoy laughter at the expense of patients, or exclaim: "It served him right; because he would not be advised." If people are warned of dangers, and still persistently rush into them, there is no one but themselves to blame; and it exhibits no unfeelingness on the part of those who manifest the absence of sympathy for people who obstinately provoke trouble, which might have been avoided by heeding good counsel and advice when extended to them. Think of all this, kind reader, and see whether these suggestions do not contain something worthy your attention.

INDEPENDENT of all individual considerations and interests, a journal of the character of the CALIFORNIA ARTHITECT AND BUILDING REVIEW, should be heartily and universally supported and sustained on this coast. There are interests and questions of the most vital importance to every man of family, which cannot be so well revealed through any other ordinary channel. Those questions and interests require special handling by parties familiar with their import and character, so as to present them in their true light. It is not well that entire communities continue in ignorance of the great principles of organic life, and the injurious and destructive elements which are unceasingly at work in their midst, fulfilling the great laws in natural things which produced their existence. It is not for mankind to murmur and complain because of certain existences, and attempt to interpose objections to those secret natural agencies which so materially affect human health and life; they exist, and that which is is right, and the duty of mankind is to accept inevitable things, just as they are given to them—not seeking to change the established order of things in nature, but conforming to them as beyond change by human power, and striving to understand and avoid or counteract their dangerous character and effects. There is no seeming or positive ordinary evil which may not be overcome by proper effort and appliances; but when successful remedies are accomplished without a fair or perfect knowledge of causes and effects, it is merely accidental. There may sometimes be a blind stumbling in the right direction, but ordinarily a proper and full understanding of principles are imperatively necessary to any consistent and uniform result. All information is derived from some certain source, and the better the source the more perfect will be the information obtained, and as perfection is more nearly secured by constant study and application, it is fair to presume that a journal of special character will best meet the requirement.

Sleeping Apartments.

Of all the rooms in buildings, those appropriated to sleeping purposes should be the most perfect and complete in their arrangements for ventilation, sunlight, and in all other regards conducive to health. One-third the hours of human life are spent in sleeping apartments, where the air is still and motionless, except as moved by its own innate forces while the inmates sleep; and unless continually refreshed by the introduction of new air from the exterior, passes rapidly to decay or deterioration, and soon assumes an impure character, rendering it unfit for the sustenance of human life. This is true in all cases, but when human beings remain in rooms where there is no ventilation, the deterioration becomes the greater and more rapid, as respiration consumes the life-sustaining properties of the air, by consuming the oxygen, and supplying its place with narcotic poison. The impurity of air twice breathed is great, but when it is considered that the volume of air in a small apartment, where two or more persons sleep, is breathed over several times during the average hours of rest, it becomes clearly evident that it reaches a very vitiated condition indeed. And were it not for the purer atmosphere which forces itself through the cracks and crevices around windows, doors, baseboards, etc., to in part replace and replenish the foul air within, life could not be sustained for any considerable length of time. Human life is sustained in its freshness and vigor by pure air, while physical sufferings and mental enfeeblements result from its impurity. Silly people will reply to this: "I am not so particular about ventilating my room, and yet I enjoy good health." This is simply ignorance, or the mockery of the divine order of things, for there is nothing more fully and clearly established in the great system of the organic laws of life and nature, than the undeniable facts stated. And while there may be some whose physical organism may be able to endure more than others, still the immutable organic laws of life are working on just as their great Author intended and ordered they should. And those who stand before the wheels of destruction will surely receive the reward of their folly. The work of decay and replenishing is progressing every moment of our lives, and after nature has extracted all that is of use to it from that which is within the human system, and throws off the worn-out matter in the form of poisonous gases, is it not presumptuous folly to attempt to force back into the channels of life that which has been expelled from them as no longer of any value?

Pure air is the fountain of life to any one, and no one is true to his own health interests who does not secure it at all times, and under all circumstances, to the full extent of possibilities. And in no connection should more care be practiced than in rooms where people sleep. We might fill the columns of this journal ten times in discussing this question, and presenting statements and facts in illustration; but it is not necessary. Every intelligent person understands the general principles involved, and the object of this article is not to discuss *established facts*, but simply to attract some attention to a too often forgotten necessity: That of securing good ventilation in sleeping apartments. In rooms used during the day time, the air never reaches that deteriorated condition found in chambers, for the reason that the opening and closing of doors provide a renewal of pure air to a large degree, and the mere moving around of the inmates create disturbances in the currents within the room, and the friction and commotion created insures a degree of rarification and renewal. Still, it is well that every room and apartment should be provided with proper means of ventilation.

Laying and Nailing Floors.

The fact that the floors of buildings are scarcely secondary in importance, as a feature of strength, their being properly laid and nailed becomes a material matter for consideration. No one who understands the science of construction will undertake to question the value of floors in buildings as a means of bracing and stiffening, either in brick or frame constructions. And this fact being admitted, the question of the best method of laying and nailing them becomes important. Yet there is no portion of the work, as a rule, more carelessly executed, except where care becomes an obligatory and imperative necessity in special cases. To lay floors properly, they should fill out snugly to the walls at all parts. The more solidly this is done, the more complete will be their bracing effect. Every piece of timber used in a building has a proportionate strengthening value, and that value is increased or diminished by the manner in which each piece is applied and secured. Every single nail driven is one part of the general strength obtained, although one nail is very insignificant, considered in connection with the thousands used in a building. One, or two, or a hundred may be omitted, and apparently, no harm result; but still their support and strength, whatever that might be, is taken from the whole. This is particularly applicable to the nailing of floors. Each and every floor-board should not only fit snugly at the walls, and the joints be driven up solidly, but they should be nailed with *two nails* at each and every nailing, driven from the face, or "through-nailed," and the nails set in with nail-sets. This is the best method of nailing floors, with a view to their solidity; and when so laid and nailed, the full strength of the flooring is obtained, and their entire value secured, as a principle of strength, as well as their utility. This "through-nailing" proposition will, however, be met with the argument, that "it makes many holes in the surface, and detracts from neat appearances in the face of the floors." But the argument is valueless, except in ball-room, kitchen, and other similar floors, not intended to be covered by carpets, oil-cloths, etc. No argument is possible, that through-nailing does not give greater strength and solidity. These are fixed facts; and if so, then the method of through-nailing is the better in all cases where floors are covered, as nail-holes do no injury, and are unseen when covered up.

The "tongue," "blind," or "secret-nailing" process, was unknown in the boyhood days of those who have lived a half century, and when first adopted, the nails were driven into every timber, with due regard to the angle at which they were driven, and the heads of the nails were not bruised into the wood, but when sufficiently driven by the hatchet or hammer to touch the wood, a nail-set was used to complete the driving; and many a journeyman received his discharge and boys were kicked for driving the nail too far, and bruising the edge of the flooring. But of later days, particularly in California, the nails are banged into the wood, without any regard to the bruising of edges, and not much in reference to the angle at which driven, although the proper slant of the nail is of the highest importance. The nearer possible perpendicular they are driven, the greater the draw, and the more solid will be the floors. But often they are forced in at so flat an angle, that many of them bolster up the boards, and the result is a disagreeable, creaking sound in walking over the floors, with very little strength from the nailing. There would be less objection to concealed nailing, if proper care was practiced. But it is a more acceptable method to "floor-layers," as a greater number of squares can be laid within working hours; and if there is no one watching, and the work is being done "piece-work," it is an easy matter for the workmen to omit one-fourth or one-third of the nails, and no one be the wiser after the following board is driven up. The labor of secret nailing is not more than one-fourth that of driving two nails from the face and setting them in with nail-sets. In wide flooring, concealed nailing is by no means good, even if carefully performed; and as far as strength to the building from the floors and their solidity are concerned, by two through or face nails in each and every board at each nailing-place, it is much more than doubly increased. As before remarked, in uncovered floors, the secret nailing provides a more perfect face, and this is the only recommendation for this system of nailing.

Gold and Silver

are practically as valueless to the masses as cobble-stones, when and so long as stowed away in vaults, or by any other means withheld from general circulation. The fact that there are ten or ten thousand millionaires in San Francisco is simply a positive curse to the city, so far as they hoard up their accumulated millions from common uses and purposes, or dispose of them in ways profitless to the masses. It is not the great abundance and colossal magnitude of wealth within

a State or city that makes it prosperous, but a good, healthy, and sufficient circulation of coin and money values. As a rule, great personal wealth is drawn from the masses in some form or other, and when retired from general circulation, the effect is always detrimental to the interests of the community. Ten millions of dollars, thrown into business channels, is of immensely greater value to the public at large than a hundred thousand millions hidden away in secure places and shut up from circulation. The curse of California to-day is found in the very fact that capital is too much concentrated. A certain number of men have accumulated great wealth, while the multitudes remain comparatively poor. Had we fewer millionaires, it would be a blessing to the State; for the wealth concentrated in a few hands is the natural product of this coast, and if more generally distributed than it is, the masses would be comparatively better off, and a more healthful condition of things generally exist. Nor is it a fact in all cases, that this individual accumulation of wealth is the result of special moral worth and personal rectitude. Quite as often it is the reverse of this. More men become rich by schemings, circumventions, and shrewd [illegible] scrupulous correctness. That which can be done *under the law* however, must be accepted as legitimate, however questionable it may be, viewed under the moral code. But whether men acquire wealth legitimately or otherwise, is not so much a matter that concerns the masses as the disposition made of it by them. The money of the honest man and the rogue alike possesses equal value for all purposes of trade and commerce; and in a financial sense, the dishonest man who throws in circulation his ill-gotten gain, if such it be, is better, as far as the general public is concerned, than the purest-hearted man on earth, who withdraws from common use the gold most virtuously obtained. The life-blood of State, city, and business life is their money circulation, which flowing freely through all the arteries of trade and commerce, gives health, vigor, and prosperity, but when coagulated in concealment under massive bolts and bars, or otherwise stultified, deadness and sufferings ensue. We repudiate communism in all its shapes and forms; but when a comparatively few men secure excessive shares and proportions of the wealth of the land, while the masses groan under the burden of poverty, it is the most natural thing imaginable that the multitudes clamor for relief. It is not because men possess great wealth, that the less fortunate cry out against them, but because they become moneyed tyrants over the comforts and necessities of the many; becoming human icebergs as it were, upon the ocean of life, crushing every feeble human bark that perchance may fall in their way. It would matter but little if all the wealth of the world rightfully belonged to but one man, provided the flow of gold from his coffers was sufficient to supply the wants of mankind.

The Question is often Asked,

Is it possible to avoid the dangers arising from sewer gases, etc.? We answer yes, by avoiding mere pretenders as architects, builders, and sewer layers, and entrusting those important duties to none but *thoroughly qualified and capable men*, who understand the necessities of the case, and possess the integrity to perform the work as it should be. When owners become as anxious to find and employ good men to do their work, because they are good, as they are to find the "cheapest men" because they are the cheapest, better work will be the rule. But so long as fierce competition governs and controls the letting of work, and all classes are allowed to figure, and the lowest bidder accepted, defective work may be expected. For men who figure down to non-paying prices, calculate to secure themselves in every possible way against loss; and in whatever way a dollar can be saved, it is done, with no solicitude or regret for probable consequences. But the answer to all this is, "let the architect see that slights or omissions are not practiced." To do this would often require incessant attention, at the sacrifice of all other engagements; for many of those who undertake contracts are wholly incompetent to execute proper work, and need an instructor constantly, even if they are disposed to do the best they can. But quite as often, this class of men knowingly seek to omit, hide, and cover up all that is possible, and unless the architect is as keen as it is possible for him to be, and as faithful as a house-dog, advantages will be taken of him, as well as the owners. And it is demanding extraordinary, and seldom sufficiently paid-for services, to carry work to completion satisfactorily in all respects, when inferior men are intrusted with contracts.

Competitions.

Except in the erection of the more costly class of buildings, where the competition is confined to "leading contractors," who have mastered the situation, and secured a position and standing beyond the point of doubt as to their responsibility, skillfulness, and competency, the rules governing competitions are by no means free from serious objections. It is sometimes said that comparisons are odious, and the same may be said of competitions. To render them entirely fair, the parties thereto should possess about equal or relative qualifications and merits to justify the expectation of equal results as a whole. The fact is not sufficiently appreciated, that the qualifications of men making the same pretensions to skillfulness and competency in the same lines of profession or mechanical pursuits, differ materially. One may modestly claim for himself mechanical experiences and abilities, and another declare as much in expressive and boastful terms, while in fact the former may be the better and more reliable party, and vastly the superior of the latter. But it is no uncommon thing that owners reject the former as being "too tame and dull," and accept the latter because outspoken and declarative. He is a live man; while in fact he may simply be using the force of his expressive nature, to gild over secret and hidden purposes and designs. The fact that these positive degrees in qualifications and pretensions exist in all branches of mechanism; no fair or reasonable minded man will contend that it is an equal contest to place in competition judgments and real merits, so extremely opposite, with any reasonable expectation that comparatively equal conclusions as a whole will be reached. It is against this indiscriminate method of bunching competition, that well-founded objections are raised and justified. Nor is the assertion that the "cheapest man is as good as any," sustained by facts and experience. It might happen so in exceptional cases, but as a rule, men who figure extremely low, study every possible means to avoid or diminish losses, and every art and device that will produce a saving is resorted to. Two nails are never driven where one can be *made to answer*, although two would secure better work, and would be driven by the more scrupulous man. If a brick mason, the cheaper man will be sure to omit every barrel of cement possible, while the dearer man would act more honorably, and use all that might be required by the specifications. If a carpenter, savings are secured through "piece work" when possible, the omission of braces, the use of less costly materials, the employment of third-rate sub-contractors, the purchase of inferior glass, doors, hardware, etc., while the better man would pay an advance on all these, and in reality give the owner *greater value* in return than the cheaper man. So in reference to painting work. One furnishes the best of stock, and applies it of greater consistancy, while the other uses base admixtures reducing quality and last, and applies it in sparing quantities. This is not unsupported logic, but facts known to all architects; and owners simply deceive themselves with the supposition that cheapness in house-building is always the most prudential. And in reply to the ever uppermost intervention, that "the architect should see to it that such things are not perpetrated," the answer is substantial, that it is difficult to discover all the tricks of a rogue. He is apt to circumvent the most diligent attention of all watchers that may beset over him, and men who will act unfairly, and scheme to do a wrong, will deliberately falsify to make their deceptions sure, and it is doubly difficult to watch both a rogue and a liar. In the experience of every architect who has enjoyed any considerable extent of practice, he has heard men "swear to God," with uplifted hand, that certain things were true in reference to their operations, which they then and there unmistakably knew to be false. Still the architect is expected to understand all this, and by the magic of superior art, discern every concocted scheme intended and planned to deceive—none of which would be necessary, if competitions were confined to fair men of known integrity.

The Tay Bridge Disaster.

The most appalling of railway disasters occurred on the evening of December 28th, at the bridge over the Frith of Tay, on the railroad between Edinburgh and Dundee, Scotland. At this point an iron bridge two miles long crosses the Frith on 85 spans, ranging from 18 to 88 feet above the water. Of these spans, six were 27 feet, fourteen of 67 feet 6 inches, fourteen of 70 feet 6 inches, two of 88 feet, one of 162 feet, one of 170 feet, and thirteen of 245 feet. The long spans near the center of the bridge were the highest above the water.

On the evening of the disaster a train from Edinburgh to Dundee, comprising locomotive and tender, four cars of the third-class, one of the second, and one of the first-class, and a brakeman's van, entered upon the bridge near seven o'clock, a high wind blowing at the time.

In the bright moonlight the train was seen to reach the middle of the bridge over the navigable part of the Frith, then, suddenly, with a flash of fire it disappeared. Subsequent examination found that a section of the bridge half a mile in length, comprising a dozen or more of the longer and highest spans, had fallen, and the train had been precipitated into the gulf. The railway officials report that the falling girders made a very clean break from that portion which remains standing. Almost the only signs of the catastrophe are in the ends of the rails where they were torn asunder. The rails remaining appear wrenched out of their chairs for a few yards.

For some hours the furious gale prevented boats from reaching the scene of the disaster. By that time no vestige of the wrecked train could be found; and for a long time divers were unable to discover any traces of it in the quicksands of the bed of the Frith.

The first report of the managers of the railway said that there were nearly three hundred passengers on the train besides the train-men. Not one survived. Later the authorities estimated the loss as low as seventy-five. The exact number will probably never be known.

It is impossible at this writing to obtain any clew to the cause of the disaster. The gale is said to have been the severest experienced in Scotland since 1868. It is most probable that the bridge was blown down. That its fall was occasioned by a derailment of the train by the wind, does not seem likely in view of great length of bridge destroyed. That the foundations of the piers were not undermined seems probable from the circumstance that one report speaks of the piers as still visible. Whatever the cause, the disaster remains the most remarkable and terrible in the annals of railroading.

A detailed account of the construction of the fatal bridge, with illustrations, was printed in the *Scientific American Supplement* of April 7th, 1877, and an account of the completed structure and its inauguration in the *Supplement* for July 20th, 1878. —*Scientific American.*

Long Distance Telephoning.

An interesting trial was made with Bell telephones, December 26th, between Dayton, Ohio, and Indianapolis, Indiana, a distance of one hundred and eight miles. The wires of the American Union Telegraph Company were used, and the experiment proved conclusively the utility of Bell telephones for distances within one hundred miles. Conversation between the exchange offices of the two cities was maintained throughout the day. A circle of one hundred miles radius, with New York as a center, includes all the western part of Connecticut as far as New Haven, with its numerous large and growing towns and cities; the Hudson River cities as far as Hudson, taking in Poughkeepsie, Newburg, Sing Sing, and other large places; all the cities and towns of New Jersey; Wilmington in Delaware; and Philadelphia, Reading, Easton, Scranton, and other large places in Pennsylvania. A slight addition to the radius, still without much exceeding the distance between Dayton and Indianapolis, includes Hartford on the northeast, and Baltimore on the southwest. All these great centers of population and trade are thus already within possible telephonic reach of New York; and it is quite within the limits of possibility that the end of the current year may see business men in this city dealing directly, by word of mouth, with customers scattered over all this wide reach of country. —*Scientific American.*

The Late Architect of the New City Hall.

The debut of Mr. John Clifford before the people of San Francisco, in the role of City Hall Architect, from the time of his appointment until his retirement from the position, attracted extraordinary interest and attention, intermixed with nearly universal surprise, that he, an almost entire stranger in San Francisco, without one particle of *sufficient* proof as to his qualification for the position, should have been appointed, or that under the circumstances which surround his career as an architect, he should have aspired to the office, and pressed his claims—whether by the logic of his grandiloquent tongue, or by shrewd and crafty manipulations and combinations.

Had the gentlemen composing the commission making the appointment, exercised good judgment and discrimination, paying no attention to the "powers behind the throne," and rejecting all personal influences and considerations in behalf of an unknown man in professional circles, Mr. Clifford would have continued in the quiet walks of private life, seeking engagements in ordinary business channels. We venture to affirm that no three business men in this city, possessing qualifying experiences to make so important an appointment, acting upon their uncontrolled judgment, would have commited so great a mistake.

We state in all candor and sincerity, that we regret that Mr. Clifford should have been so unfortunate as to secure the appointment—unfortunate for him, because it led to the exposure of matters and facts which otherwise might have passed into forgetfulness by the lapse of time. But the responsibility of all that resulted from the consummation of his vaunting ambition, rests upon himself.

We have said that the appointment was a mistake, and this we hold to be true. It was so on their part, if the appointing powers exercised their best judgment, without any overpowering influence enforcing them to the act. It was also a mistake on their part, if they permitted themselves to be convinced against their judgment, for personal or political reasons, that the appointment was a proper one; and it was also a mistake on their part, in accepting testimony such as was presented in the card purporting to have been signed by Mr. E. Welby Pugin, which in its language and expressions of admiration, should have convinced any intelligent man, that there was also some mistake in regard to it, as its extravagant wording alone, involves a doubt as to its value as a recommendation. Men of intelligence and culture are more likely to be discreet and cautious in their statements, rather than to almost exhaust the English language in their commendations of others. It was also a silly mistake on the part of the appointing powers, to suppose that they could place in so responsible a position, just who they please, without any regard to the qualifications of the party appointed, or his claims thereto by right of local citizenship, without giving great dissatisfaction, and stirring up a fierce opposition. It was not only a natural but fully justified resentment that manifested itself so generally, and the play that was attempted upon the rights and privileges of resident architects, has received a merited rebuke. Had there been no gentleman in the profession in this city, qualified for the position, it would then have been right and proper that some new-comer should have been appointed, and if need be, some one from abroad invited to come and fill the position. But in the face of the fact that there are in San Francisco in the architectural profession, many gentlemen of well known and fully established reputation, eminently qualified to fulfill the trust under consideration, the affair assumes the aspect of intended insult or disrespect to men who had a right to expect that the selection would have been made from their numbers; and had the appointing powers exercised even a moderate degree of good judgment, they would not have risked the chances of appointing an unknown party. It was also a mistake on the part of Mr. Clifford, to commence a system of slanderous criticisms against a large number, if not all the architects in San Francisco, almost immediately upon his arrival in our midst. His visits from office to office, under the pretense of professional courtesy, while from all appearances, his real motives and purposes were to pick up material for gossip and traduction, fixes upon him the reproach of deceit and hypocrisy, and his conduct in this city should be understood throughout the profession, not only in this country, but in all parts of the world, for the purpose of defeating any attempt on his part, to duplicate his movements in San Francisco in other places. For, as he has had neither the good sense, modesty, nor rectitude, to act honorably toward those pursuing an honorable profession, of which he claimed to be a member, he should be made to feel and realize that his absence, more than his presence, is greatly to be desired in any office. Mr. Clifford also made a great mistake in aspiring to the appointment. It was presumptuous in the extreme, and his presumption has received merited rebuke. His statement that the exposure which caused him to step down and out, was a preconcerted and maliciously concocted scheme among the architects of this city, or a portion of them, is on a par with all else that he has uttered—the emanation of his own diseased brain or corrupt nature. We are willing, however, to believe that his errors arose from an impaired or naturally demented intellectuality, for no sane man, endowed with a fair degree of common sense, could be induced to pursue a course so at variance with all rules of propriety.

That there was and is, a strong feeling of prejudice existing against him, cannot be denied. And why? Because he incited it by his own acts and words, as it is clearly evident from all the proofs made public, that he was well received, and kindly treated by the architects of this city upon his arrival in our midst, and the strangest feature of the case is, that instead of profiting thereby, he passed from office to office, traducing the abilities of the very men who had extended civilities and kindness to him, thus demonstrating that he was either a simpleton or bad man.

It is unnecessary, however, for us to pursue the subject further in detail, as the merits of the case have been fully presented in the daily local journals. A statement from us appeared in the San Francisco *Chronicle* of January 18th, in which we are correctly represented as using the term "fraud" toward Mr. Clifford. This expression means a great deal or nothing, and no man should make use of it without good and sufficient reasons, and ours we give as follows: When some months since, Mr. Clifford called at this office, he was kindly received, and left our presence without any other feeling on our part, than kindly. Soon after his departure however, we were shown a print representing the Schweitzer building in Chicago, accompanied with a statement of facts in connection with it. This information was received from a gentleman well known to us, and in whose integrity and veracity we had the most implicit confidence. This statement very naturally inclined us to less favorable conclusions toward the gentleman under notice, but it went no further for the time being; and had nothing more occurred, we should have allowed Mr. Clifford to pass without further notice. But when upon his second call, and in personal conversation with us, he attacked the architects and architecture of this city in general terms, reflecting upon both as failures, there was forced upon us the feeling of utter contempt for the man, presuming that as he had no good word for others to us, in conversation with others we would receive the same indiscriminate raking that he had so liberally and unasked for, dealt out to us concerning other architects. Naming successively several prominent gentlemen in the profession, he voluntered his opinion freely that they were each and all great failures architecturally; not one of them, according to his notions, enjoying even passable abilities as architects; and pointing to the Nevada Block, denounced it as a failure, possessing no architectural merits. The same reference was made by him to the Bank of California, the Baldwin, Grand, and Palace Hotels, and other prominent buildings. All this followed by extravagant admiration and praise of drawings in this office, established very clearly to our mind, that Mr. Clifford was a man to be shunned more than courted, and the old saw, that "the dog that will bring, will carry a bone," seemed to us applicable in his case. Had his unfavorable criticisms been confined to the Nevada Bank building, there might have been some show of excuse for them, upon the supposition of non-appreciation of the design in that particular case, or from feelings of personal unfriendliness toward Mr. Farquharson, who designed it. But when his denunciations included everything architectural in the city, it was impossible to avoid the conclusion that the man Clifford was a positive fraud in his judgment, morals, and manhood.

For the information of the readers of this journal in the Eastern States and elsewhere, who do not receive the daily papers of San Francisco, we will state the case in brief. Mr. Clifford arrived in San Francisco during the year 1879, perhaps during the spring or early summer months, and immediately following his arrival, he introduced himself in the various architects' offices, and from some of the gentlemen of the profession, received extended courtesies and introductions calculated to assist him in business engagements and acquaintance. It appears that he also, early made the acquaintance of Denis Kearny, and it is stated as a fact, wrote some of the most violent and abusive speeches delivered by the agitator during the year. This secured him the friendship and influence of Kearny. The Mayor, Auditor, and City and County Attorney constituted the commission empowered to appoint an architect for the New City Hall of San Francisco, and these three officials being of the Sand Lot party, appointed Clifford as architect soon after their induction into office, in December last. The appointment created an intense feeling of surprise among the architects of San Francisco, and the general public, who failed to realize the propriety of the appointment—Clifford being a stranger in the city, with nothing to sustain his qualifications for the position. His incapacity soon became apparent, and several anonymous letters to architects in this city, couched in the vilest and basest language, stirred up a strong feeling generally, until the matter was taken up by the San Francisco *Chronicle*, which resulted in an exposure of terrible character, and the identification of Clifford with the anonymous missives. The pressure became so great that Clifford tendered his resignation on the 20th inst., with a most inglorious record.

Disinfectants and How to Use Them.

The National Board of Health, consisting of a number of our leading physicians and chemical experts, of which Prof. C. F. Chandler is chairman, have issued the following instructions for disinfection, intended especially for the guidance of physicians and nurses in the yellow-fever districts, but which are equally applicable in other classes of contagious diseases. In submitting this report the chairman says:

It has been the aim of the committee to prepare concise directions for disinfection, so simple and clear that they may be easily followed by any person of intelligence.

In the selection of disinfecting agents the aim has been: 1st, to secure agents which can be relied upon to accomplish the work; 2d, which can be procured in a state of comparative purity in every village of the United States; 3d, so cheap that they can be used in adequate quantities.

It is extremely important that the people should be instructed with regard to disinfection. They must be taught that no reliance can be placed on disinfectants simply because they smell of chlorine or carbolic acid, or possess the color of permanganate, and that, in general, proprietary disinfectants with high-sounding names are practically worthless, as they either have no value whatever, or if of value, cost many times as much as they are worth, and cannot be used in sufficient quantity.

Almost a Thousand Inquiries

Have been made in reference to the future special or general character of this journal:—whether it is to contain this, and that, and the other information. To gratify all wishes and requests, would necessitate a book of twice the number of pages that we now print, and a corps of draughtsmen, engineers, geometricians, mathematicians, encyclopedians and learned men and scholars, requiring a large amount of money to provide for their daily wants and necessities, to say nothing about the surplus that should accrue for such services. We answer in this way:—If our subscription list is increased to a sufficient number, nothing shall be wantiug to make it a first-class publication, containing a large amount of valuable information and instruction. But good things cannot be obtained without money. Gems and jewels do not lay around promiscuously, to be picked up at pleasure. Neither can really meritorious journals be published without heavy expenses. Persons with no experience in journalism imagine that the great cost of a publication is the expense of paper, composition, and press-work, while in fact, these are merely incidental outlays, compared to the many other financial requirements necessary to a complete and comprehensive work.

With increased patronage, we shall certainly increase facilities, and gather around us all available aids necessary to insure completeness in every department sparing no expense required to place it among the most instructive and acceptable of its kind published.

There is nothing we desire more, not even wealth and fortune, than the permanent establishment of a journal in California, of such high character and standing, and such intrinsic excellence, as to receive and merit general support and approval from the masses of our fellow-citizens on the Pacific Coast, and recognition from other parts of our great country.

All Men are Borrowers and Lenders.

As a rule, the intellectual and moral strength of men and women are shaped, and increased and enlarged, by the surroundings and circumstances of life, outside of their individuality. True, the history of mankind presents cases where men have arisen from low and degrading conditions, and made for themselves an enviable record. But more frequently the human mind conforms to the conditions of life and education, and if not sustained by better influences, the baser will be developed. One has well said—"When education has been entirely neglected or improperly managed, we see the worst passions ruling with uncontrollable and incessant sway. Good sense degenerates into craft, and anger rankles into malignity. Restraint, which is thought most salutary, comes too late, and the most judicious admonitions are urged in vain." This is fully sustained by common experiences; but aside from this special view of the case, there exists the other fact, that the masses of men gather from each other, influences which control their everyday life. As we see others act, we seek to imitate their better qualities or avoid their errors. In dress, deportment, manners, business habits, social life, and in almost every other regard, we borrow from others, while they and we, each and all, lend the force of individual example.

In respectable circles, there is that ever existing desire to dress as fine or act as handsomely as others, and we refuse to do this or that, for fear that it will not appear well in the opinion of our neighbor. And we thus strive to have our acts and appearances please somebody else. In this way we borrow our conceptions of others' opinions to regulate our own conduct. If our neighbor appears to be very good, we borrow the influence of his goodness, by at least avoiding the violation of any rule of life that would place us at a disadvantage. If the habits of another are condemnable, we are warned by them, and borrow their influence to regulate our own acts. Many do well, and perform excellently good acts, because others have done so; and multitudes do evil, because the avenues of wrong are crowded with willing votaries. And so we borrow and lend, to and from each other, weaving out the net-work of life with many beautiful threads of priceless value, but not unmixed with others of coarser kind, so that in the lend no man's life can be looked upon as faultless.

In most cases where great men have appeared before the world, they too, while borrowing some, have loaned more. Perhaps in the years of infancy and childhood they received sweet and loving influences from the heart of hearts—a mother's—which laid the foundation of all after-greatness; or other loving influences have played their part, in tapping and keeping clear the springs of honorable life, which in after years, have broken forth in crystal streams of pure thought or mighty conceptions. Whether or no we realize and accept it, the fact remains the same, that all men are borrowers and lenders. We each and all, good and bad, borrow in some degree the influence of our surroundings in life, and in like manner lend our own to the benefit or injury of others.

What Will such a Building Cost?

This is the first question asked by owners, when they have determined upon the erection of any sort of a building. Architects always expect to meet this inquiry at first consultation in reference to plans. Sometimes an approximately correct estimate may be made by some one or more of the usual methods of cubing or otherwise, but accuracy is never assured until the plans and specifications are completed, particularly the latter; as the cost of an edifice may be varied from ten to a thousand per cent., by the manner of construction and the introduction of certain finishes and fixtures. And until all the features are determined, attempts to define cost are speculation, except in ordinary buildings intended for tenement purposes, or the moderate and uniform class of houses. The great difficulty, lying in this direction, is the too general one of owners fixing their minds upon a certain class or plan of house, and then setting apart a sum inadequate for its erection. The fact is too generally overlooked, that buildings, like goods and merchandise, may be immensely varied in cost by quality; and as people generally are willing to pay more for a better article of any sort, the same disposition should influence in reference to buildings. If owners would first determine the amount which they can afford to expend in a building improvement, and then be content to accept a building worth the sum designated, it would be simply fair and equitable; while to adopt plans of a certain kind and character, and then insist upon its cost conforming to one's bank account, is not an equitable proposition. If an owner secures the erection of a building at less than its actual cost, it is at the expense of some one else, and is just so much value obtained without an equivalent, a proposition to which no business man would consent with the deficit balance against himself. We all like to obtain what we want with as light a demand upon our purse as possible, but in all fairness between man and man, dealing with others as we desire to be dealt by, is not a bad rule; and if owners would consent to this, and encourage men by fairly liberal prices, they would receive in return better buildings and workmanship, and there would be less complaining on all sides. And we recommend that instead of owners pursuing the common course stated, that they first determine their financial condition, and then seek to obtain the best they can for the amount. The squeezing process is all well enough when apples or lemons are the things squeezed, but when men are pressed to a loss, they are certain to resist the pressure by all possible means, and owners often suffer damage by too great an attempt to economize.

Our Sanitary Department.

Almost everywhere than in California, more earnest efforts are being made to arrive at a proper and intelligent understanding of the great sanitary problem in all of its ramifications, and to determine the most effectual means of remedying and preventing the stupendous evils which have so long existed, and been the means of so many thousands of human beings prematurely leaving the avenues of time, to enter that bourne from whence no traveler ever returns.

It seems that it requires destruction in some tangible form to attract and alarm public attention. When the scourge of small-pox, yellow fever, and similar terrible visitations appear in any section of our country or the world, the hearts and sympathies of the whole nation are at once aroused, and men rush at risk of life, to render aid; and tens of thousands of glittering gold is poured out to afford relief. But the still, slow, sure and perpetual slaughter of *thousands daily*, from the effects of inhaling and breathing deadly sewer and other vicious and health-destroying gases and airs, and taking into their systems polluted fluids in various forms, receives but little attention. Parents generally punish their *children* for disobedience of established rules, or the committal of wrongful acts; and yet those same parents, more inconsistent than their offspring, because more matured in experience and judgment, live hourly in disobedience of established laws in nature, which God has decreed, those who violate them shall suffer. The follies and freaks of childhood may be punished or pardoned, but there is no excuse for those who willfully resist the established facts and principles involving life and health; and the folly persisted in always receives the punishment decreed by imperative laws—the laws of nature and nature's God. We may play with these for a time, and disregard their warnings, but the penalty of their violation is as certain as that our lives will sooner or later end.

The following extracts from the *Plumber and Sanitary Engineer* will be read with interest:

"The sanitarian is abroad. As Emerson says, 'Things are in the saddle and ride mankind.' Sanitary events are multiplying so fast that it is difficult to keep pace with them. Since our last issue, in New York city several plans for model tenement houses have been published, a voluntary sanitary association has been organized under excellent auspices, a sanitary tract society has been begun, and a bill for organizing a State Board of Health has been drafted. In New Jersey active measures for local and State improvement have been set on foot, the report of the Memphis Sanitary Surveyy has attracted wide and deserved attention, while in Milwaukee, Buffalo, Washington, Philadelphia, and a score of localities, sanitary discussion is going on, and sanitary reforms are proposed. In short, the public are everywhere awakening to the great question of the hour, and we may anticipate that during the coming year vast and potent results will have been accomplished in this direction. Our only fear is that some mistakes may be made from over-zeal and rash enthusiasm. The motto of the sanitarian should be Goethe's, 'Without haste and without rest,' or, translated into the Western vernacular, 'go slow.' We cannot afford to make mistakes, and it is better that reforms should be retarded rather than that the public confidence should be shaken by crude and unwise experiments."

Another extract shows the character and standing of the gentlemen who are so deeply interested in this important subject:

"The Sanitary Convention, held at Trenton, Dec. 12th and 13th, was a pleasant and profitable affair. The attendance was not as large as it should have been, but the audience comprised intelligent men of many professions, physicians, teachers, engineers and clergymen, including Bishop Scarborough, of the Southern Diocese of New Jersey, who set an excellent example to the clergy by his earnest interest in all the proceedings.

"The most important feature of the meeting was a report on the relations of soil and drainage to the death rate in Jersey City, Hoboken, and vicinity, prepared by a committee comprising Messrs. L. B. Ward, E. W. Harrison, A. Speilman, Charles P. Brush, J. S. Hilton, and A. W. Rogers. This was illustrated by a number of carefully prepared diagrams embodying much valuable information very clearly presented. The report, with these illustrations, will be published by the State Board of Health of New Jersey, when we shall have occasion to refer to them in detail. Their value as a contribution to exact sanitary science cannot be over-estimated.

"The danger of alarming the public mind by over-talking and sensational statements, together with the risk of too much legislation, was clearly stated; while the positive benefits of agitation were demonstrated.

"The discussions of the different papers and reports were full and fertile.

"Special reference was made to the dangers which threaten the health of Atlantic City and other seaside resorts, unless sanitary precautions are introduced. School hygiene was also considered. In short, the meeting was extremely practical, stimulating and suggestive.

"Our only comment is one of regret that our own State appears so backward in comparison with New Jersey in these matters. We have neither a State Board of Health nor a Sanitary Association, and it is greatly to the discredit of the Empire State that it should be thus distanced by its sister State.

"Dr. Billings read before the N. Y. County Society, an admirable argument for a National Health Organization, which was referred to a well selected committee," for the purpose of drafting a plan of a State Board of Health:

"Since this paper was read, the committee of the National Academy of Sciences, appointed to confer with the National Board of Health, have unanimously recommended to Congress nearly all of Dr. Billings' suggestions, which it is to be hoped will be adopted, and that the National Board will be sustained, not only by Congress, but by the whole commercial community, who are really interested in its maintenance.

"The commission appointed by the National Board of Health to make a sanitary survey of the City of Memphis have made a concise and able report. The composition of the Board was such as to be in itself a guarantee against all attempts at whitewashing, and showed that something earnest and real was sought for. The report briefly describes the condition of the city, and recommends certain radical changes, and ends by saying that 'few places possess greater

natural advantages than the City of Memphis for drainage, removal of excrement, garbage, etc., to secure that healthfulness so necessary to commercial prosperity.'

"Among the evils found are: *first*, a limited water supply from cisterns and wells, which are largely contaminated by privy vaults and other foul collections; *second*, considerable collections of old bedding and clothing in junk shops and similar places, the antecedents of which are more than doubtful, and which contain an uncertain amount of infection; *third*, a considerable number of old shanties and sheds, together with a smaller number of large dwellings in the heart of the city, which are foul past redemption, and which should be destroyed by fire; *fourth*, the prevalence of wooden pavement in the streets in such a bad state of repair as to be an absorbent of unwholesome vapors; *fifth*, the absence of efficient sanitary police regulations as to removal of garbage and excrement; *sixth*, absence of sewerage and sub-soil drainage.

"The recommendations are briefly as follows: *first*, a supply of water from the river or some more remote source, and the cleaning out and filling with clean material of all privy vaults; the abandonment of all cisterns and wells as sources of water supply; *second*, the destruction by fire of various collections of clothing, bedding, etc., supposed to be infected, and of a considerable number of buildings of like character; *third*, the substitution of gravel for wooden paving and sand in many of the streets, and the enforcement of rigid regulations as to removal of garbage and excrement, together with the appointment of an efficient head sanitary officer, with large powers; *fourth*, the construction of sub-soil drains and sewers —the latter to exclude all rain water, surface water and ground water, and to serve for the removal of sewage only; and to be constructed of glazed earthenware pipes, of such size as to insure their carrying the sewage when half full, with ample arrangements for flushing at frequent intervals.

"This system of drainage is estimated to cost only $225,000—a moderate sum, considering the importance of the end to be gained, and certainly within the means of the taxable property of an enterprising city like Memphis.

"We congratulate her citizens upon the apparently clear path before them in these fundamental steps in public improvement."

The Family Physician.

The health-officer, the sanitarian and the paragraphist may do much in the slow work of awakening public opinion; but the family physician speaks with the voice of authority.

His prescription for the removal of the sources of foul air will produce an effect which can be produced in no other way so surely.

It may seem at first sight as something beyond thelimit of a physician's duties, to do the work which should have been done by the architect and the city engineer; but if we consider that his first and greatest duty is to exert himself to the utmost for the prevention of diseases, we shall see that he can no more transfer his responsibility to the architect, than in the curing of disease, he can transfer it to the apothecary. To continue the comparison, it is no more important that he should understand therapeutics for the direction of the apothecary than that he should understand sanitary construction for the direction of the plumber and the mason. He need not, of course, concern himself with the mechanical processes by which they do their work, but he should know the objects their work is to serve, and be able to determine the efficiency with which these are secured.—*Col. Geo. E. Waring.*

A Novel Clock.

We copy from the *Scientific American* the cut and description of "a handsome clock of Austrian manufacture, which makes no pretense of being anything other than what it is, and in which the design and ornament are studied with due reference to the use for which it is intended. The simplicity of the design is offset by elaborateness in the detail of the decoration, which is rich and well conceived. In the panels of the dome is some very fine work. Above the dome is an open belfry, containing a bell and hammer. With this arrangement the vibration of the metal, when the hours are struck, is not muffled, but rings out clearly and with distinctness. Another feature, companionable or distracting, according to one's mood, is the pendulum, swinging across the face of the dial, attracting the eye by its mute motion to the ever-advancing hands and to the significant legend inscribed above them."

CLOCK OF AUSTRIAN DESIGN.

A Tragical Incident in the Early History of Odd Fellowship.

One of the most foul and deliberate murders ever perpetrated occurred in the City of Baltimore, some thirty-five or forty years ago (more or less) the attendant circumstances of which came under the personal observation of the senior editor of this Journal, and we have often wondered that the case has not assumed a prominent feature in the history of the order, inasmuch as it was one of the *very first special occurrences* which led to the breaking down of the then-prevailing prejudices against secret orders.

It is a well-known fact to those who can run their individual recollections back to the period of time mentioned, that among the church organizations generally, excommunication often followed membership in a secret society, and the advancement of the orders in point of membership was greatly retarded by the religious and social prejudices of those days; and men were required to choose between the probable advantage of secret society affiliation, and church membership.

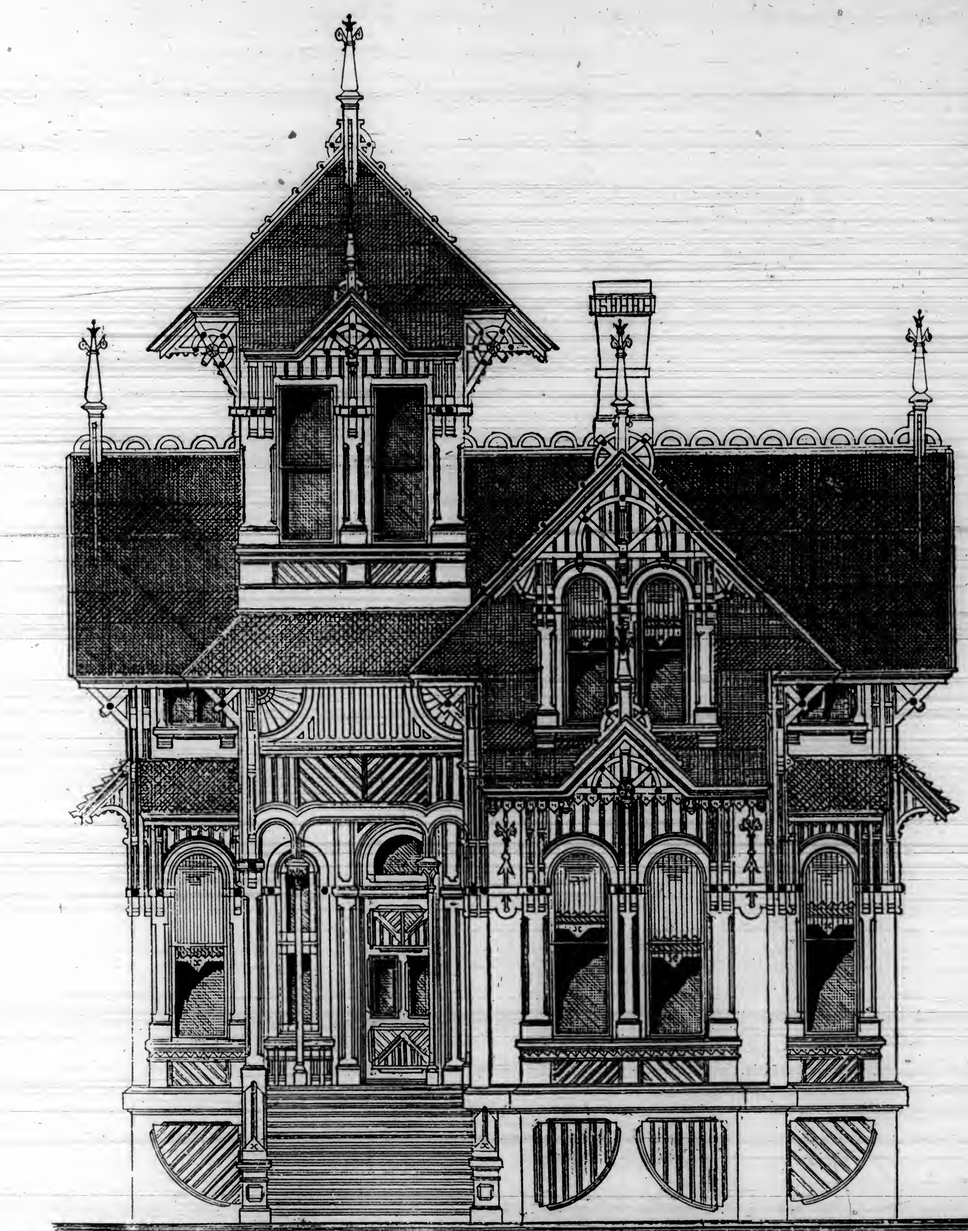
The incident referred to, was as follows. We relate from individual recollection, and may err in some of the details, but the general facts are as stated.

A man by the name of Alexander Rowe, (or Roe) was inhumanly murdered by a room-mate named Henry McCurry. Rowe was a southern merchant, who, having completed his purchases in New York, Philadelphia, etc., arrived at the city of Baltimore, by the late train, on the night of the murder. Stepping from the cars at the Pratt-street depot, he saw and spoke to McCurry, a stranger to him, and inquired whether there was a respectable hotel near by—he intending to pursue his journey south, by the morning train. McCurry referred him to the —— Hotel, on Charles Street. At the request of Rowe, McCurry assisted him in carrying his trunk to the hotel, and soon they joined in a social glass at the bar. Rowe inquired for room accommodations, and was informed that all single rooms were full, and that accommodations could only be had with another party. Rowe consented to join occupancy "with any *gentleman*," and was referred to McCurry, who occupied a fine room with two beds in it. Both parties retired for the night, one to rise no more from slumber, and the other to perpetrate a deed of death. Rowe, in disrobing, laid his elegant gold watch and chain upon the dressing-case, not knowing that his doing so doomed him to death. McCurry looked upon the shining object, and at once conceived his terrible design.

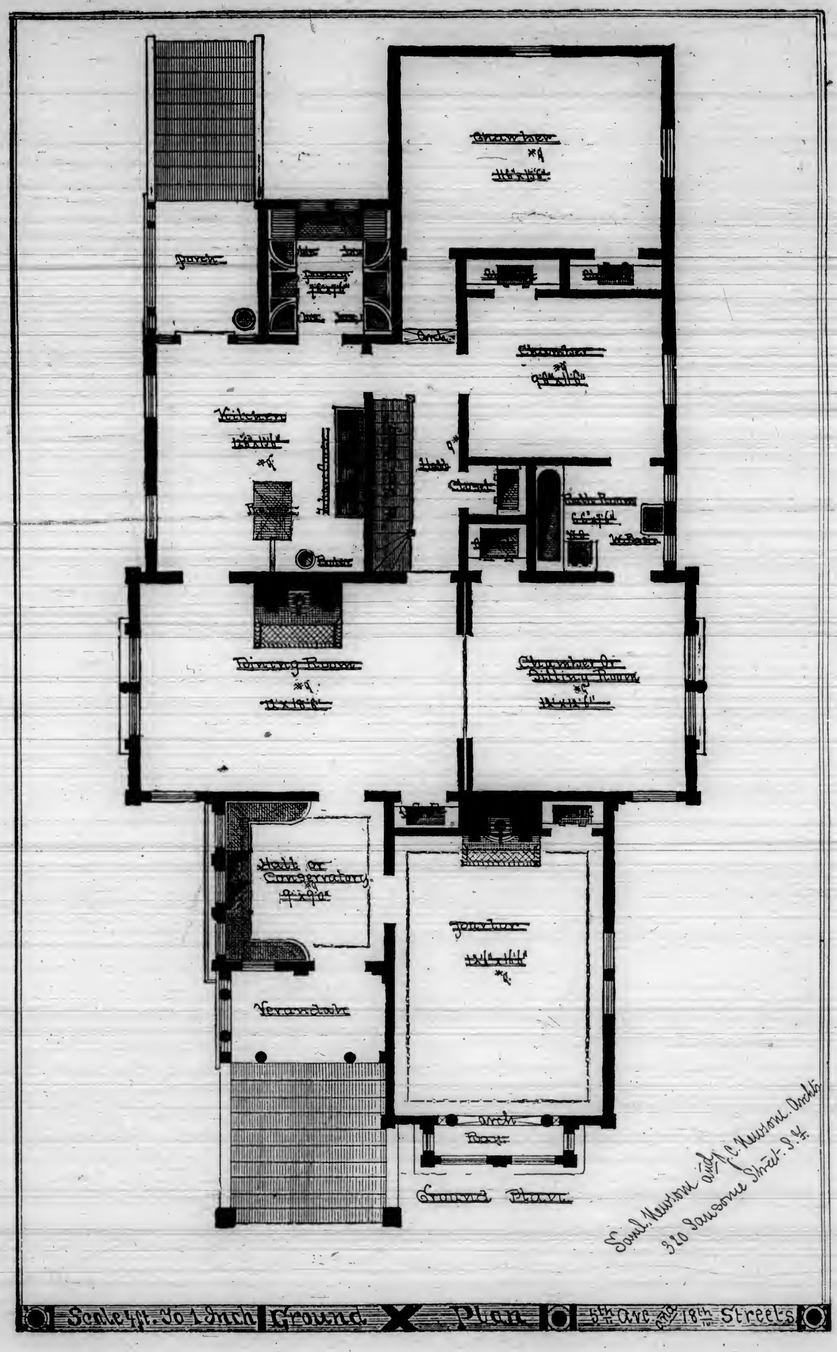
The parties occupied their respective couches, and Rowe from fatigue soon fell asleep, to wake no more on earth, and McCurry to abide his time, and perfect his murderous intentions. As soon as it became evident to McCurry that his victim was firm in the embrace of slumber, with cat-like tread he passed out of the room and procured the merciless wood-ax from the cellar of the building, with which he again entered the chamber where his unconscious victim slumbered on. The work of the succeeding few minutes was terrible. With ax in hand, McCurry passed by the foot of the bed and slowly around to its head, where he stood, assuring himself that Rowe still slept; certain of which, he raised the selected instrument of death, and by one savage blow with the pole of the ax across the temple and cheek, sent his room-mate into eternity. This one blow terminated in instant death, as from the position in which the body was found, it was evident that death was instantaneous. But the fiend intended sure work, and dealt another blow upon the cheek, after which he laid aside the ax, and with knife or razor cut the throat of the murdered man. McCurry then took possession of Rowe's valuables and keys, and managed to enter the baggage-room and extract from the trunk of his victim, all that his wicked eyes coveted.

The next morning, upon leaving the room where the murdered man lay, McCurry locked the door, retaining the key in his pocket, and reported to the clerk of the hotel that his *room-mate had concluded not to leave* the city that day, as intended by him the night previous, and that he had gone to visit a sister on Howard Street. McCurry jumped on board of the first train for Philadelphia and left. Nothing was known of what had transpired, until late in the forenoon, when at an unusual late hour one of the chamber-maids found the room still locked, and the key not in the door, nor on the key-

ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV



Capt. Beach's Residence | Saml. & J. G. Newsom Architects. S.F.



Scale 4 ft. To 1 Inch | Ground X Plan | 5th Ave and 18th Streets

board, which led to the forcing open of the door. What was discovered upon entering the room may be clearly imagined from what we have written. Suspicion was at once directed to McCurry, but he was gone. The service of the police was called in. No one knew the murdered man, and all was surmise and doubt, until cleared away by the discovering of his *Odd Fellow's card*, which aroused the order to a high degree of excitement, and as one man, and in the true spirit of its teaching, every member was alive for the occasion.

A reward of one thousand dollars was offered by the city authorities for the arrest of McCurry, another thousand by the governor, and a third thousand by the order.

The then far-famed detective firm of Hayes, Zell and Ridgely were in existence; and that veteran Odd Fellow, P. G. M. Ridgely, a member of the firm, started in hot pursuit of the villain.

Meantime the order took matters in hand, removed the lifeless remains of the murdered brother to the "*Egyptian Saloon*"—the elegant hall of the Odd Fellow's temple on Gray Street—where it was laid in state, surrounded with everything then known to render the affair grand in its sadness. Member seemed to vie with member, and garlands, wreaths, and floral tributes profuse, not only beautified the casket, but filled the chamber of death with sweet perfume. The doors of the temple were thrown open, and thousands viewed the remains, and thousands more lined the sidewalks, as a devoted brotherhood followed them to their last resting-place. The grand exhibition of brotherly love and devotion to sacred principles displayed on the occasion, taught sceptics and bigots a lesson in Odd Fellowship, which up to that time was not understood.

And following this melancholy affair, and as the result thereof, hundreds joined the order, who might not otherwise ever have affiliated. And from that time the order was greatly relieved of the pressure that had rested upon it, by sentimental persecutions, and religous dogmas and bigotry.

While all this was going on, Ridgely was in pursuit of the offender. He tracked him to Philadelphia, where the traces disappeared. He then went to New York, where, joined by the police of that city, an unsuccessful search was continued for days, until it was finally determined that Ridgely should return to Baltimore, and leave the matter with the New York detectives. With this intention determined upon, Ridgely walked around to see what was to be seen, and passing down one of the "slips" of the city, and by a low groggery, he saw three men standing in front of the counter or bar, and from some movement on the part of the man who stood with his back to the door, he felt assured that he had found his man, and at once entered the shop or gin-mill, and joined in familiar self-imposed introduction and conversation with the suspected individual, pretending old acquaintanceship, etc.; and becoming fully convinced that he had met the party he was in search of, Ridgely *reached* for the fellow's watch, and arrested him then and there. The small matter of Rowe displaying his watch, led to his death, and the small matter of McCurry stopping where he did, to get his last drink of whisky in New York, caused his arrest and final execution: for he had secured passage to Europe, and the vessel upon which he was to sail was anchored in the harbor. But the firm hand of the detective was upon him, and escape was no longer possible. Fiery indignation, and fuming protestations of innocence and insult were of no avail, and he was taken to the "Tombs."

When the afternoon papers were issued, notice of the arrest appeared, and a statement of what had been found on his person giving, and with other things, the number and maker's name of the watch. This attracted the attention of Treadwell & Co., jewelers, then under the Astor House, who at once identified the watch as having been sold by them to Rowe, a short time previously. This clinched the chain of circumstances, and McCurry was taken to Baltimore, tried, and hung.

We relate this incident because at the time, it produced a decided public sentiment and feeling toward Odd Fellowship, and was one of the prominent causes of greater after-success in the order, growing out of the splendid management of the affair by the order.

The Difficulties

Attending the establishment of a journal of this character in San Francisco are far greater than people generally imagine, and ten-fold greater than that experienced in the older States, where a thousand resources and facilities are at command, while in California the field is new, and the work of breaking the soil and sowing the seed is all to be done before the rich, ripe fruit can be gathered. If our patrons could be made to comprehend the many obstacles that we have had to encounter, they would scarcely credit the possibility of what has been accomplished. All things considered, we are satisfied with what has been achieved, although our past and present showing but faintly illustrates what the future will be. The assurances given in this and the *Quarterly Review* will be developed as the people of this city, and the western slope generally, rally to our support by subscriptions and advertising patronage. This done, improvements in matter and illustrations will follow, and in a short space of time we will present a publication that will challenge criticism, and compare favorably with the best journals of its kind published anywhere. But all this will cost large sums of money, and we appeal to our fellow-citizens generally, and the people of this and adjacent States, to demonstrate their appreciation of so important, necessary and valuable a journal, by sending in their subscriptions by thousands.

Patting us on the shoulders, and congratulating us at the success accomplished, is all very nice in its way, and pleasant to experience, but it requires hard coin to meet costs and expenses, and we hope that every well-wisher of the enterprise will be prompt to prove their good wishes by sending in their subscriptions forthwith.

The "Established Grade" of San Francisco.

There never was a city founded on the face of the globe where the natural advantages for a thoroughly perfect system of grades and drainage was more complete; and with this fact considered, but few, if any, where a more imperfect system exists. To remedy the terrible blunder now would be almost too gigantic a work to include within the possible things, and the expense so great that the thought of doing so is simply frightful—still, it might be done. We propose by the use of figures, to sustain the assertion that a *great and serious engineering blunder* was committed in defining the official grade of this city. In the first place, the "base grade" is declared 6 7-10 feet above ordinary high tide, which would indicate that cellars might be made full six feet deep in the base grade districts, with nine inches to spare at ordinary high tide. But the practical fact is established that cellar floors which are not over five feet below base grade are overflowed, as a rule, at every high tide that flows in; so that theory and practice, in this particular, by no means harmonize. Then taking Sacramento street as the line east and west, the official grade stands in this shape: Commencing at the eastern water front of the city, the base grade continues in toward the city 1,000 feet; that is to say, 1,000 feet cityward from the front, the grade is dead level. This ends at Davis street. We will now continue by blocks, from street to street—412ft. 6in.—to give the grades at each crossing. With Davis street at base grade, Front street has an elevation of nine inches; Battery street, two feet six inches; Sansome street, four feet three inches; Montgomery street, six feet nine inches; Kearny street, twenty-eight feet; Dupont street, sixty-eight feet; Stockton street, one hundred and twenty-eight feet; Powell street, two hundred and five feet; Mason street, two hundred and sixty-seven feet; Taylor street, two hundred and eighty feet; Jones street, three hundred and thirty-eight feet, the highest point of grade on the line, from which the descent is westerly to the sag at Polk street.

Then taking Sixth and Taylor streets as the north and south line, we find the grade at base for a distance of 2,400 feet, ending at Bryant street. It must be remembered that the blocks south of Market street are double the size of those north of said street. At Bryant street we find the grade at base. At Harrison street, two feet above grade; at Folsom, five feet; at Howard, ten feet; at Mission street, thirty feet; at Market street, thirty-four feet; at Turk street, thirty-three feet, showing a pitch of one foot toward the hill three hundred and thirty-eight feet high; at Eddy street, thirty-five feet; at Ellis street, fifty feet; at O'Farrell street, sixty-five feet; at Geary street, eighty feet; at Post street, one hundred and five feet; at Sutter street, one hundred and thirty-five feet; at Bush street, one hundred and seventy-one feet; at Pine street, two hundred and thirteen feet; at California street, two hundred and seventy-eight feet; at Sacramento street, two hundred and eighty feet, from which point on this line the decline is toward Russian Hill. If a worse showing than this can be made in any other city, with similar natural advantages, we should like to know of it. The whole system is wrong, and shows exceedingly bad judgment. The excessively steep grades render the blocks in which they occur anything but comfortable for pedestrians, while in the more serious particular, they are fearfully injurious to the lives and health of the inhabitants. Thousands of our female population in particular, have been laid on sick beds by over exertion in climbing those terrible inclines, and until wire cable roads were established, property in such localities, and on the hill-top, was not desirable. Comment as to what a beautifully graded city San Francisco might have been is unnecessary, nor is there any defense for the mistakes which have been saddled upon the community. To talk of the expense of cutting down the higher elevations, when there was a "fill" to receive every ton of material removed from the "cuts," is simply absurd. And when all the thousands of daily occurring extra expenses involved by the steep grades are considered, and which will continue for all time, the absurdity becomes still greater. On the line of other streets there are numerous instances where the grade pitches toward the hill, some of them as much as ten feet. The statement has often been made that San Francisco is one of the muddiest places on earth during the wet season. It it any wonder; when hundreds of blocks lie at dead level, and as many more with but a few inches or a foot fall from crossing to crossing of streets. Take Market street, for instance, the great business street of the city, and the following figures appear: 1,000 feet at base, and at Fremont street, 1,725 feet from the water front, a rise of three feet; at First street, five feet; at Second street, twenty feet; at Third street, thirty-five feet; at Fourth street, thirty feet; at Fifth street, twenty-four feet; at Sixth street, thirty-four feet; at Seventh street, thirty-two feet; at Eighth street, forty-three feet, at Ninth street, forty-eight feet; at Tenth street, forty-four feet; at Potter street, forty-two feet; turning the sweep into Valencia street, with a grade at Herman street of forty feet. On Kearny street we find, at Market street, thirty-five feet grade, and running north to Post street, thirty-nine feet; at Sutter street, thirty-nine feet; at Bush street, thirty-nine feet; at Pine street, thirty-nine feet; thus presenting a level grade through Kearny street for a distance of three blocks. On Montgomery street, at Market and Post streets, twenty-four feet; at Sutter street, twenty-four feet; at Bush street, twenty feet; at Pine street, thirteen feet; at California street, seven and one-half feet; at Sacramento street, six and three-fourths feet; at Clay street, six feet; at Washington street, six feet; at Jackson street, six feet; at Pacific street, thirty feet; at Broadway, seventy feet; at Vallejo street, one hundred and fifteen feet; at Green street, one hundred and seventy feet; and at Union street, two hundred and twenty feet.

From the figures presented, it must be evident to every one that great mistakes have been made without a single feature of defense. With high hills in the center of the city, pitching both ways toward the bay, there is no good reason why perfection of grade, as near as it is possible for the human mind to conceive, should not have been secured.

We shall pursue this matter in future numbers of this journal, in which we shall present conclusive arguments showing that the error complained of is of serious consequence as far as health and life is concerned, to say nothing of the tremendous sums of money that this great mistake has rendered necessary on the part of the citizens of San Francisco, and the city itself, and which will be continued yearly, so long as the city stands.

The Irishman and the Hair.

A very condemnable habit exists among the plasterers' and brick masons' laborers and others to a great extent in this city. Many thousands of dollars have been paid out by owners and architects in response to

hints suggestive of "the price of a glass of beer, if yees plase." It is sometimes amusing to hear Pat say, when the owner or architect show themselves, "This mortar is very dhry," and he at the same time throwing pails of water into it, or supplying the necessary fluid through the end of a hose. But it is not the mortar that is meant, but the man who is manipulating it. It is a bad habit, and if not appeased by a cash deposit of one, two, or five dimes, the work sometimes suffers, for when the appetite of a burly hod-carrier is worked up to a point where he expects, and imagines he ought to receive a "schmall cunsideration," it is to him a very great vexation not to receive it, and if possible, he is sure to be avenged for the "wee bit ov a schlight." If he finds the opportunity, he is almost sure to "git aven wid him," while the deposit of a dime or two into Pat's hand makes the bricks wetter, the cement mortar stronger, and that for the plastering work much more hairy and better manipulated. On one occasion, some years ago, we paid our usual daily visit to a building under our charge, and met Pat's gentle hint satisfactorially to him. A few days afterward, we were accosted by the same knight of the hod and shovel, with—"Gude morning, Mr. Architect, yees a foin mon; yees the foinest architect in all the city, yees is." We acknowledged the compliment good-naturedly, and awaited the sequel. "Now be aisy, and I'll be after telling you the whoul story. I was making the mortar to plaster a hoose just forninst, and the ouwner come along, and I just thought he was a foine mon loike yeeself, and I give him a schlight hint that the mortar wus dhry, but niver a bit did he mind that, but whaled on his hales, and off he went widout so much as saying "gude morning"—do yees moind that now? and it wus mane in him, it wus; but, by the pouwers, I got aven wid him." In answer to our inquiry as to how he obtained his satisfaction, he replied, "Well, now, yees know, Misther Architect, that gude mortar ain't worth much when there is no hair in it, and, by the pouwers, I dug a hole in the ground and buried the hair, do yees moind that, now?" We asked whether he made the whole of the mortar without any hair in it, and he replied, "No, sur, I put some hair in the mortar, about as much as the mon, hisself, wus wurth." "And how much was that?" we asked "Not tin cints, and, be jabers, I did not put tin cints wurth in all the mortar I made, when he wus too mane to gi' me the price ov a glass ov beer.

It is stated that the sewers of London discharge annually, 153,000 tons of suspended matter into the Thames, from which about 88,000 tons of manure—including 2,000 tons of phosphates and 8,000 tons of water—could be made. The above figures are gathered from a paper, "Suggestions for dealing with the Sewerage of London," read by Major-General Scott before the "Society of Arts" in London. The writer stated that the sewerage of London still contaminated the river, and urged that operations could be profitably carried on to utilize all this matter. He estimates that $500,000 would erect the tanks for making the manure, which would sell for $660,000 yearly.

To the Ladies.

The ladies, particularly those who have families, should read this journal attentively, for six reasons.

First, nothing offensive will ever appear in its columns to offend the most sensitive and refined natures.

Second, we hold that mothers and daughters are much more subjected to the effects of unwholesome conditions than the male members of the family, owing to their more constant presence at home. Consequently the important lessons which appear in this journal, in relation to sanitary matters and health regulations, should be read by them, so that they may intelligently understand the unseen yet ever present possibilities of daily life, as existing in sewer-gases, impure atmospheres, and unhealthful surroundings in their multifarious forms. We believe that ladies are competent to comprehend and fully understand the natural laws, principles, and forces governing all these, and they should consider them well, and seek those channels of information best calculated to impart correct and practical knowledge.

Third, many ladies have excellent husbands, as far as relates to the obligations and responsibilities of common life in a general sense, but who may be ignorant, if not stupid, in matters affecting the healthfulness of their homes. And it is well that the equally good wife should be well informed, so that she may be able understandingly to direct her excellent husband's attention to matters requiring remedies. And if she is thus well informed, she will be able to argue points, and assist in arriving at right conclusions.

Fourth, it will contain many excellent suggestions in reference to closets, pantries, and other essential nicetics so much valued by all ladies, and which is so important to the complete comfort and conveniences of a well appointed home.

Fifth, on our account we should like every lady on the coast to read it and become interested in it, for we have often found in the practice of the profession, far better judgment in the lady than in the master of the home; and we should like to have a host of subscribers among the gentler sex, whose interest would be so great in search of correct information, that many of them would send us communications for reply or publication. We know the fact that there are many intelligent women in San Francisco who are fully competent to express their views in admirable shape, and deal with difficult questions and problems involved in home building. Such will always be welcome contributors to our columns.

Last, aside from all this and the *special* character of this journal, gems of thought will be found in its columns, which should be read by every lady and youth in our midst.

The Real Estate Market.

The real estate market remains dull. With the opening of the spring months, dealers predict that there will be greater activity; but at the present time, buyers dictate prices in many instances.

The following noticeable sales have been made during the month of January: Lot on south side of Market street, 150 feet west of Seventh street, 75x165 feet; consideration, $1. The lot was sold at a very low figure, said to be $48,000.

The Southern Pacific Railroad Company have purchased a large lot on the north side of Herman street, 174x192 feet, in Mission block, No. 14. The company own the adjacent property. Price paid, $24,500.

The brick building and lot on east side of Sansome street, 66 feet south of California street, 23x 71.6, was sold by the Reese estate, some four months ago, for $34,000, is now resold for $35,000. It is leased for four years, at a rental of $300 per month.

The two 50-vara lots on the north-east corner of Clay and Buchanan streets, and 50-vara adjoining, having frontages of 275 feet on Clay street, have sold for $19,000. This property is to be built upon. Some eight or ten frame buildings for residence purposes, are to be erected this summer.

It is stated that the old Merchants' Exchange property, on Battery street, has been, or is about to be sold, the parties having agreed upon the price —$80,000. The frontage on Battery street is 137 feet 6 inches, by a depth of 137 feet 6 inches, on Washington street. The rental of the property is at present about $2,000 per month; but as the United States courts will remove shortly, the income will be somewhat reduced.

A block of land, bounded by Fell, Oak, Baker, and Broderick streets, facing the entrance to Golden Gate Park. Price in deed, $30,000; but it is scarcely possible that this property was sold for the sum named.

The 50-vara lot, south-east corner of Washington and Webster streets, sold by the Masonic Bank. Price, $8,000.

That desirable residence property known as the Satterlee estate, north side of Clay street and south of Jackson street, between Polk and Gough streets, has been divided among the heirs, and the property will either be improved or disposed of when purchasers present themselves. It is the choicest residence property in the city.

The "American Sugar Refinery Company" has purchased the property on the south-west corner of Battery and Union streets for $75,000, including buildings and machinery. The new company intend to make extensive improvements on the premises.

The Lick estate controversy has been settled, and the trustees will now proceed to carry out the trust. The conveyance of the Lick House property and eight other pieces by John H. Lick to R. S. Floyd et al., being the deed of settlement, was recorded in January.

Editor California Architect and Building Review: The following contribution in reference to a common and well-known article—"India ink"—may be of use to some of your readers:

Articles in common use are too often passed over without that full consideration their importance demands. A more careful study of the special qualities and characteristics of such articles will, in some instances, reveal mysterious properties, of incalculable benefit, if properly applied.

"India ink" is a mixture of extremely fine black with a cementing material more or less soluble in water. When albumen is used as the cementing material, the ink is freely soluble in cold water, while boiling water coagulates the albumen and renders the ink insoluble. This I have found to be the case with some of the best ink.

When gelatin is used, warm water dissolves the ink quite readily, while in cold weather it thickens, clogs the pen, lacks intensity and does not take hold of the paper, but runs over, as if the paper was greasy. Gelatin that has been boiled and cooled a number of times loses its setting qualities, and remains fluid in cold weather. Where this preparation of gelatin has been used, the ink works more freely.

When gum arabic is used in the ink, it becomes brittle, and scales off when the paper is folded. If glycerine is mixed with the liquid ink in the cup, it does not dry so rapidly; neither will the lines set so quick on the paper, and it is liable to blot; but the ink will not crack or scale, glycerine having such a strong affinity for water, the lines are liable to run with the least moisture; therefore due caution must be observed in using it.

Some of the acids and alkalies assist the solubility of the inks, and it is quite a difficult matter always to select those best suited to each particular case. Acids, on account of their oxidizing properties, have a destructive effect on the instruments, and should be used with caution. A weak solution of acetic acid is the best to use, being easily obtained sufficiently pure for this purpose in the form of vinegar, by using the vinegar in place of clear water to "rub up the ink" with. As vinegar retards the drying, consequently it is more liable to blot. Alkalies are preferable to acids in some respects, but are not entirely free from objections, as the caustic alkalies, such as soda or potash, have a destructive influence on the cementing material of the ink, rendering it weak and brittle. Ammonia seems to have the least injurious effect; while at the same time, it renders either albumen or gelatin easily soluble.

Ammonia being volatile, it can be used in the water for grinding the ink, and the dish being left uncovered for a time, the ammonia passes off; and whenever the ink runs greasy over the paper, a few drops of ammonia in the ink remedies the difficulty, and most inks worked in this manner will have a dead black, and any degree of intensity can be obtained.

In mixing colors with the ink, considerable care and study is necessary in order to obtain the best results. All stains, such as aniline colors, should be discarded, as the porous nature of the paper takes the greater portion of the staining compound from the ink. The lakes should also be used with caution, as the alumina of the lakes will sometimes form other compounds in the presence of acids or alkalies. The best colors to mix for toning the ink are the more permanent mineral colors, and the ochres and umbers that have been burnt.

When drawings are made with the inks prepared in the manner already described, the lines will "work up" when a damp sponge is applied, or when brushed over with color. This can be corrected, and lines made to resist the action of boiling water by mixing a few drops of a strong solution of bi-chromate of potash with the liquid ink in the cup, or by using a weak solution of the bi-chromate in place of water to grind the ink. Ammonia in the ink does not interfere in this case, and any intensity and strength of line may be obtained.

When the drawing is dry, expose to the action of sun-light for fifteen to thirty minutes—the lines can be washed over with water without "working up."

This procedure is founded on the well known fact that the bi-chromate of potash or ammonia, mixed with organic matter like albumen, gum, gelatin, etc., when dried and exposed to light, becomes insoluble in water. As simple as this may seem, many details will have to be carefully attended to in order to succeed. As before stated, ink the is composed of finely divided particles of carbon, or color held in place by an organic cement, which, after being applied to paper, can be made insoluble in water; it follows that sufficient of this cement should be present to bind its particles, therefore a few drops of gum or albumen added to the ink will increase its binding strength; but to obtain intense lines it is better to use as little in addition to that already in the ink as possible.

This compound of bi-chromate and organic matter is not in any great degree sensitive to light while wet, but must be thoroughly dry, that the light may have its full effect; and furthermore, the action of the light goes on for some time after the drawing has been removed to a dark place; and also bear in mind, that black retards the action of the light on the lines. Therefore if the lines are very intense and heavy, a longer exposure will be required.

If in a half hour after exposure to the light a damp sponge removes the ink, then there has not been sufficient organic cement, or not sufficient bi-chromate, or more likely the drawing not exposed the required time. No more ink should be mixed than required, and all ink-cups, brushes, pens, and sticks of ink should be very carefully cleaned while damp, to prevent the ink when dry from being affected by the light.

As the bi-chromate is a powerful oxidizer, all pens or implements should be carefully cleaned to prevent rust; and the solution, on account of its poisonous properties, should not be brought into contact with the skin, as it may cause sores difficult to heal. For this reason pens or brushes should not be taken into the mouth for damping or pointing.

H. T. Beston.

To Carpenters and Builders.

We have been asked by many whether we intend to introduce scale details as a feature of this journal. Our reply is that we shall produce whatever may appear to us most suitable to our class of subscribers. If *a few thousand more journeymen* in the various branches will call and enter their names on our books as subscribers, we will organize a *special department* of the character referred to. The cost of a whole year's subscription is small, and a large majority of mechanics throw away in useless expenditure more than the amount weekly. Not only that, but if those who are accustomed to spend much of their time away from home, in places where money is drawn from their pockets—often to their injury—would read and study the monthly contents of this and similar journals, it would be the means of saving them money which would otherwise be wasted. What our mechanics most need, is a higher cultivation calculated to develop their better manhood. Thousands of them are wholesouled, sterling, good men, and their generous natures and impulses, uncontrolled by wholesome restraints and influences, lead to unprofitable and demoralizing habits. If a more elevated sentiment prevailed among them, their advantages would be greatly enlarged and improved; and it will be a source of great pleasure to us if this journal shall be the means of creating an increased desire on the part of workingmen for things of ennobling tendencies, calculated to inspire right ambitions and desires in the minds of those who are required to earn their bread by daily toil.

Divisibility of Matter.

A curious calculation has been made by Dr. Thompson, the well-known philosopher, to show to what degree matter can be divided and still be sensible to the eye. He dissolved a grain of nitrate of lead in 500,000 grains of water, and passed through the solution a current of sulphureted hydrogen, when the whole water became perceptibly discolored. Now, a grain of water may be regarded as about equal to a drop of that liquid, and a drop may be easily spread out so as to cover a square inch of surface. But, under an ordinary microscope, the millionth part of a square inch may be distinguished by the eye. The water, therefore, could be divided into 500,000,000,000 parts. But the lead, in a grain of nitrate of lead, weighs 0.62 grains; an atom of lead, accordingly, cannot weigh more than one-310,-000,000,000th of a grain; while the atoms of sulphur, which in combination with the lead rendered it visible, could weigh no more than one-215,000,-000,000; that is, the two-billionth part of a grain. But what is a billion—or rather, what conception can be found of such a quantity? If a person were able to count at the rate of 200 a minute, and to work without intermission 12 hours a day, he would take, to count a billion, 6,944,444 days, or 19,025 years and 319 days. But this may be nothing to the division of matter. There are living creatures so minute that a hundred million of them could be placed in a cubic inch. But these creatures, until they are lost to the sense of sight, aided by the most powerful instruments, are seen to possess organs fitted for collecting their food and even capturing their prey. They are, therefore, supplied with organs, and these organs consist of parts of atoms, so to speak. In reckoning the size of such atoms, it is necessary to speak, not of billions, but of billions of billions.

Webster's Unabridged Dictionary.

The new issue of this most valuable and indispensably necessary book, is in quantity of matter, by far the largest volume published. It contains about 118,000 words defined, and nearly 15,000 words and meanings not found in any other one dictionary. The biographical dictionary just added, supplies a want long felt by the reader and student, in giving the desired information so briefly. Never was any one volume so complete as an aid in getting an education.

Henry Clay and the Billy-Goat.

During the lifetime of the Kentucky statesman, a very large, well known and somewhat noted Billy-goat roamed at large in the streets of Washington, and the newspaper boys, bootblacks, and street imps generally, made common cause against him. Henry Clay never liked to see dumb animals abused or worried, and on one occasion, while passing down the avenue, a large crowd of these mischievous urchins were at their usual sport. Mr. Clay, with his walking-stick, drove them away, giving them a sound lecture in the meanwhile. As they scampered and scattered in every direction, Billy seeing no one but Mr. Clay within reach, made a charge on him. Clay dropped his cane and caught his goatship by the horns. The goat would rear up, being nearly as high as the tall Kentuckian, and the latter would pull him down again. This sort of sport soon became tiresome, and he could conceive of no way by which he could free himself from the two-horned dilemma, so in his desperation he sang out to the boys to know what to do. One of the smallest in the crowd shouted back, "Let go and run, you d—d fool!" Clay always maintained that though he signed the treaty of Ghent, yet that ragged boy knew more than he did.

A Good Joke

Is told of a little four-year-old fellow, who having disobeyed his father, was about to incur the penalty—a switching. The father deliberately prepared a rod, while his son stood a silent and sad spectator. As the parent approached the unpleasant duty, the boy started on a brisk run toward a neighboring hill. The father pursued, and for a while the youngster increased the distance between them; but gradually his strength began to fail, and when he reached the hill and began to ascend, he soon lost vantage ground. Nearer and nearer the irate father approached, and just as the top of the hill was reached, and as he came within an arm's length of the little fugitive, who was ready to fall with exhaustion, the boy quickly faced about, dropped upon the ground, and with an indescribable cast of countenance, exclaimed, "Papa, that—makes a fellow—blow—don't it?" This "changing of the subject" was so extremely ludicrous that the father laughed heartily over the strategy which his hopeful son exhibited, and the rod was not used.

A "Phenomenon."—A lecturer undertook to explain to a village audience the word phenomenon. "Maybe you don't know what a phenomenon is? Well, I'll tell you; you have seen a cow, no doubt. Well, a cow is not a phenomenon. You have seen an apple tree? Well, an apple tree is not a phenomenon. But when you see the cow go up a tree tail foremost to pick apples, it is a phenomenon.

A New Monthly Journal.

We acknowledge the receipt of the first number of *The American Engineer*, for January, 1880, which, as its name implies, is specially devoted to engineering sciences. Its typography, illustrations, and general appearance are excellent, and its matter instructive and interesting. It is published in Chicago, by Messrs. Smith & Cowles, at $2.00 per annum. We wish it success.

Diphtheria and Foul Water.—The attention of the public cannot be too often called to the fact that diphtheria, as well as typhoid fever, typhus fever, cerebro-spinal meningitis, and many other febrile diseases, is distinctly a filth disease. Its connection with foul air resulting from imperfect ventilation, defective drainage, and foul water, has been so clearly traced that there is no room for doubt.

An English sanitary inspector recently reported to the London *Sanitary Record* twenty-seven cases of diphtheria which undoubtedly originated in the use of impure water for drinking and cooking purposes. Of the twenty-seven cases, nine were fatal. It behooves every person to look well to the cleanliness of his premises, especially to the well, the cistren, and the cellar.—*Good Health*.

It is the Fault of the Postal Service.

Numerous complaints have been made to us by subscribers in this city and State and from various parts of the Union, that they have not received the January number of this journal. Our answer is, that the fault is not ours. A copy was duly forwarded to each and every subscriber, postage paid. Our arrangements are complete in this connection, and when subscribers fail to receive their copies in due time, we hope they will notify us and the *post-office people* of the fact. It is certainly unpleasant to be disappointed in the receipt of expected journals and papers, and we trust that hereafter there will be no cause of complaint. We have entered this publication under the law of Congress, which secures its transportation under the second-class regulation, and each and every copy is taken into the post-office department, and paid for then and there, so that there can be no mistake in the delivery by us. This done, our responsibility ceases, and that of Uncle Sam begins. We shall never fail to do our part. We hope that the *numerous* failures to deliver have been accidental, and that they will not hereafter occur.

The Glory of the Architect.

Robert Burdette, of the Burlington *Hawkeye*, says: "I have often wondered why the architects of court houses were not always hanged at the dedication of the building. If the court house is a very cheap, shabby old-fashioned sort of affair, worth about $950, the chances are that a man speaking from the bench can be heard half way to the door. But if it is a handsome affair, and costs the county anywhere from one hundred and fifty thousand to half a million dollars, then the lawyer, climbing into the laps of the jurors, and bellowing his eloquence into their several respective ears, can make himself heard. Why, the reason why the judge always writes out his charge to the jury, and the foreman always brings in the verdict in writing, is because, in most court houses, the jury would never know anything about the charge, and the court would never know whether the prisoner had been hanged or awarded a premium of $200, if the human voice alone was the medium of communication."

Market Report.

The Lumber market remains as at former quotations. The demand has been extremely limited during the month of January. A glance over our "Building Intelligence" report, will furnish a very correct idea as to the probable amount of lumber orders for building purposes during the month. Still the regulation prices are maintained, and with any sort of encouraging prospects ahead, it is altogether unlikely that there will be any change for the present. It is scarcely to be doubted that the very low prices which prevailed prior to September last, entailed an average actual loss upon dealers, and men are never anxious to return to ruinous or unprofitable practices in business matters, unless pressed thereto by uncontrollable circumstances, or business rivalry.

OREGON PINE.

Common Rough, up to 40 feet, per M feet	$18 00
" 40 to 50 " "	19 00
" 50 to 60 " "	20 00
" 60 to 70 " "	21 00
" 70 to 80 " "	22 00
Refuse Rough	14 00
Common Rough, sized with planer $2 additional on above rates, per M feet.	
No. 1 Flooring, 6 inches and over, and Stepping ....per M feet...	26 00
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring....per M feet....	27 50
Rough Clear for flooring, $1 less than above rates, per M feet.	
Second quality Flooring and Stepping, per M feet	21 00
Ship Plank, rough .... per M feet....	25 00
" planed 1 side.... "	28 00
" planed 2 sides ... "	30 00
Deck Plank, rough.... "	28 00
" dressed.... "	32 50
Laths....per M	3 50
Cedar Shingles.... "	

REDWOOD.

Rough Merchantable....per M feet	18 00
" Refuse.... "	14 00
Surface, No. 1.... "	26 00
Surface, 1 x 8 .... "	25 00
" 1 x 6 .... "	24 00
" No. 2.... "	18 00
Rustic, No. 1 .... "	27 50
" No. 2 .... "	22 50
" short, 8 to 10 feet.... "	20 00
" " under 8 feet .... "	14 00
T. & G., 6-inch, 12 feet and over . "	24 00
" " 7 to 11 feet .... "	22 50
" " under 7 feet .... "	18 00
" " No. 2 .... "	16 00
" Beaded, 12 feet and over "	26 00
" " 7 to 11 feet .... "	22 50
" " under 7 feet.... "	18 00
Half-inch Surface .... "	25 00
Pickets, fancy .... "	20 00
" rough, pointed .... "	14 00
" " square.... "	14 00
Siding, ½-inch .... "	20 00
Shingles....per M	2 00
Battens, ½-inch....	75

GLASS.—There is no special change to note. The stock on hand remains ample, with very light demand. Prices largely in advance of those ruling last fall, but not so high as present Eastern rates.

PAINT STOCK.—The only special feature in this line, is the following card, published by the San Francisco agents: "Owing to the greatly increased cost of material, the price of *Atlantic pure white lead* has been advanced to 9c per pound." For like cause the price of nearly everything in the paint line, of Eastern production, has been similarly affected. While this is so generally in regard to eastern manufactured materials, the light demand for paints and all other building materials, has kept articles of California production at former prices. *Pioneer pure white lead*, manufactured in San Francisco, is offered at 6½c per lb.

HARDWARE.—The advance in everything made from pig iron as a base, is greater than in any other line of materials, averaging perhaps fully 80 per cent. increase. The increase in the price of locks, is almost 100 per cent. on an average. Nails which sold as low as $2.60 per keg last fall, are now held at $6.00 per keg.

10 to 60 pennies, are quoted at				$6 00
8	"	"	"	6 25
6	"	"	"	6 50
5 and 4	"	"	"	6 75
4 and 5	"	brad heads	"	7 75
6	"	"	"	7 50
8	"	"	"	7 25
10 and upward	"	"	"	7 00
3 penny fines	"	"	"	8 50

These prices rule under the present depressed condition of the building business. With greater activity in the building line, it is altogether likely that the prices of materials generally would be still farther advanced. At present, results are brought about altogether by the activity in business, and increased demands East for building materials. A revival of business on this coast, would most certainly add a local stimulus to prices, increasing them considerably beyond present figures.

DOORS, SASH, BLINDS, ETC.—The stock on hand is ample, with very light sales for city trade. Extremely low prices have ruled the whole line during the past few years, and an advance is more likely to occur, than a decline.

Building Intelligence.

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PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager.

Sent to any part of the U. S., postage paid, at $1.50 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal. as second-class matter.

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ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion..... $1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion..... 1 25
On other inside pages, per square, each insertion.... 1 00

With reasonable reductions for larger spaces, and advertisements continued for six or 12 months.

A Card from Architects.

Believing that a well and ably conducted journal, devoted to Architectural, Mechanical, Sanitary, Scientific, and other kindred matters and subjects, is a necessity in this city, and judging from what has appeared in the QUARTERLY ARCHITECTURAL REVIEW, published by Messrs. Wolfe & Burnham during the current year, both in illustration plates and reading contents, we are led to the belief that the CALIFORNIA ARCHITECT AND BUILDING REVIEW, proposed to be published by the San Francisco Architectural Publishing Company from and after January, 1880, will be worthy of general support and encouragement, and that it will supply a long-existing want on this coast. *We therefore pledge our cordial sympathies personally, and hope that the enterprise will receive kindly recognition and liberal support from all Architects and Builders on the Pacific Coast, and from the public generally.*

DAVID FARQUHARSON,
WRIGHT & SANDERS,
S. H. WILLIAMS,
THOS. J. WELSH,
P. HUERNE,
JOHN MARQUIS,
P. J. O'CONNOR,
THEO. A. EISEN,
B. MCDOUGAL AND SON,
WM. MOOSER,
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MEEKER & BANKS,
W. C. HOAGLAND,
S. & J. C. NEWSOM,
B. HENRICKSON.
JOHN A. REMER.

The Theme of Conversation

in all quarters of San Francisco is the unprecedented prostration of business of all kinds, and especially in the building line. On the streets, at home, in the offices and circles of trade and commerce—everywhere the question is discussed, with but one conclusion among the intelligent classes. It requires but ordinary discernment to discover the true secret of the causes which have brought upon this city the business calamities which have prevailed during the past two or three years, and in so marked a degree during the year 1879, with but limited present prospect of a change.

In all matters of a general character, affecting the interests of the whole community, there must necessarily be some diversities of opinion in reference to points subservient to the grand fact in issue; but divested of these, the state of the case with us is easily comprehended. True, if we were to review all the features of the case in detail, the story would be a long one. But this is not necessary for present purposes. There are a few principal causes in all such cases, and an attempt to search for other than those fundamental and immediately involved, is unnecessary. We will therefore confine ourselves to four, in the following order:

First.—As primary, political corruption and official irregularities stands first and foremost. All that has ever been stated in regard to the "filthy pool of politics," is entirely applicable in the case of San Francisco; and it is humiliating to be compelled to admit that official dishonesty in its worst forms have been of such common practice in this city that the integrity of really honest men has sometimes suffered, and by thousands been questioned, upon the generally conceived principle that all office-holders must be dishonest.

Secondly.—The terrible mania among the masses for stock-gambling has been the cause of untold distress. Through the heartless designings and manipulations of a large majority of those who have controlled the mining interests of this coast, multitudes have been allured into the vortex of what has proven to be unwise and ruinous speculations, and millions of dollars have been drawn from the pockets of the laboring classes and business men through often repeated assessments, thereby extracting the life's blood of prosperity from the community. For when money is withdrawn from circulation, corresponding stringency and financial suffering must follow. And in this connection we are justified in saying that it would have been a blessing to San Francisco and its people if the "great bonanza" firm had never had an existence, and the ten-cent liquor-saloon on Washington Street had been continued under the personal management of Messrs. Flood & O'Brien.

If the curses of hundreds of thousands of injured people could affect the hereafter of the gentlemen composing that firm, the heat of their eternal abiding place will be far hotter than the fiery furnace into which, by order of the king, the three children of Israel, Shadrach, Meshach, and Abednego, were cast.

Thirdly.—The great bone of contention which furnishes the pretext for the political conflicts of the hour, the Chinese, is one which largely and directly concerns every citizen of the United States. We indorse the opinion that they are and will continue to prove a curse to any country other than their own, where they are permitted to settle in any considerable numbers. Their business men—merchants and commercial traders—are shrewd and farseeing; but the masses—the hordes of coolies—are to be dreaded as a blighting plague. They add nothing to the wealth or prosperity of any place where their presence is permitted. Their entire influence is to destroy the interest and prospects of all laboring classes, and produce humiliation and want among the poor of our own race who are compelled to toil for their daily bread. Experience the world over, fully establishes the fact, that in communities where the laboring classes are comfortably circumstanced, contentment, peace, and happiness abound; and want, misery, wretchedness, and disquiet exist in exact proportion with the impoverishment enforced upon the humbler classes. And as certain as that the sun shines, the establishment of Chinese labor in the United States, as a recognized order of things, will force upon our own people a humiliation and degradation which will be painful to contemplate, and a disgrace to those in authority who permit it.

Fourthly.—The three things mentioned have furnished a pretext for the organization of a *fourth evil*—a political hybrid quite as monstrous in character as either of the others, and in many respects far more disastrous to the interests of this city and State. Conclusively so, because its influence has broken down confidence; crippled business of all kinds; created discords and bitter antagonisms between classes of the community; established and encouraged a system of slanderous denunciation against every man and all classes of men not in accord with its teachings; by words and boastful declarations, held in contempt and defied the laws and authority of the State and general government; traduced and vilified the best men of our nation; through many of its mouth-pieces, threatened bloodshed and arson; caused conditions which have and will injure and impoverish this State more than ten years of uninterrupted prosperity will recover; been the means of reducing thousands to beggary, and thousands more of its adherents to positive want and distress, and wrought untold injury and mischief in a multitude of forms, without producing a single good result which in due time would not have been accomplished in a legitimate, peaceful, and honorable way, without entailing any of the serious consequences from which we as a community are now suffering.

In a word, it has produced a paralysis in all lines of business and enterprise, and if permitted to continue, will complete a prostration in this State, not designed for it by the manifold natural advantages so liberally provided by God and nature throughout its length and breadth.

There can be no objection to a multiplicity of political parties, when their leaders and prominent men are governed by reason, prudence, and fair and just judgment; but when impure, despotic, unlearned, turbulent, and unscrupulous men assume control, and gather the large majority of their followers and subservient adherents from the slums of civilization—persons who care not whether the city or State sinks or swims, so that they secure the fulfillment of their aims, purposes, and desires—it is high time that every honest tongue and pen should express their condemnation.

Although this is not a political journal, we feel justified, and have a right to refer to this matter, because, in common with all other professions and mechanical businesses, we have suffered and are still suffering from the withering, crushing influence of this fourth evil. Had there been a concerted, reasonable, determinate move made by any organization, for the single purpose of ridding this State of the Mongolian curse, and in an honorable and proper way, attacking and correcting all other existing abuses, we should have approved and sustained it. But no denunciation can be too severe for the rash, illiberal, and reckless course which has been pursued by a host of designing men, who have used the movement in question to enrich themselves, or effect a notoriety which they could otherwise never have secured, and for which they are not qualified, either in intellect, moral integrity, or education.

That there are some good-meaning men who sympathize with the movement cannot be denied, but they have stumbled in over the Chinese issue, which looms up so prominently before the laboring classes of all grades and departments, that they lose sight of the monstrous other evils which have been created, and cannot contemplate any other vein of thought, than that "the Chinese must go," at whatever cost or sacrifice to city or State interests. Consequently there is but one contemplation in sight, and that is continued dullness in all lines of trade and commerce, until this terrible state of things quiets down, or is by some means squelched.

OREGON PINE.	
Common Rough, up to 40 feet, per M feet	$18 00
" 40 to 50 " "	19 00
" 50 to 60 " "	20 00
" 60 to 70 " "	21 00
" 70 to 80 " "	22 00
Refuse Rough	14 00
Common Rough, sized with planer $2 additional on above rates, per M feet.	
No. 1 Flooring, 6 inches and over, and Stepping, per M feet	26 00
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring, per M feet	27 50
Rough Clear for flooring, $1 less than above rates, per M feet.	
Second quality Flooring and Stepping, per M feet	21 00
Ship Plank, rough, per M feet	25 00
" planed 1 side "	28 00
" planed 2 sides "	30 00
Deck Plank, rough "	28 00
" dressed "	32 50
Laths, per M	3 50
Cedar Shingles "	
REDWOOD.	
Rough Merchantable, per M feet	18 00
" Refuse "	14 00
Surface, No. 1 "	26 00
Surface, 1 x 8 "	25 00
" 1 x 6 "	24 00
" No. 2 "	18 00
Rustic, No. 1 "	27 50
" No. 2 "	22 50
" short, 8 to 10 feet "	20 00
" " under 8 feet "	14 00
T. & G., 6-inch, 12 feet and over "	24 00
" " 7 to 11 feet "	22 50
" " under 7 feet "	18 00
" " No. 2 "	16 00
" Beaded, 12 feet and over "	26 00
" " 7 to 11 feet "	22 50
" " under 7 feet "	18 00
Half-inch Surface "	25 00
Pickets, fancy "	20 00
" rough, pointed "	14 00
" " square "	14 00
Siding, ½-inch "	20 00
Shingles, per M	2 00
Battens, ½-inch	75

GLASS.—There is no special change to note. The stock on hand remains ample, with very light demand. Prices largely in advance of those ruling last fall, but not so high as present Eastern rates.

PAINT STOCK.—The only special feature in this line, is the following card, published by the San Francisco agents: "Owing to the greatly increased cost of material, the price of *Atlantic pure white lead* has been advanced to 9c per pound." For like cause the price of nearly everything in the paint line, of Eastern production, has been similarly affected. While this is so generally in regard to eastern manufactured materials, the light demand for paints and all other building materials, has kept articles of California production at former prices. *Pioneer pure white lead*, manufactured in San Francisco, is offered at 6½c per lb.

HARDWARE.—The advance in everything made from pig iron as a base, is greater than in any other line of materials, averaging perhaps fully 80 per cent. increase. The increase in the price of locks, is almost 100 per cent. on an average. Nails which sold as low as $2.60 per keg last fall, are now held at $6.00 per keg.

10 to 60 pennies, are quoted at				$6 00
8	"	"	"	6 25
6	"	"	"	6 50
5 and 4	"	"	"	6 75
4 and 5	"	brad heads	"	7 75
6	"	"	"	7 50
8	"	"	"	7 25
10 and upward	"	"	"	7 00
3 penny fines	"	"	"	8 50

These prices rule under the present depressed condition of the building business. With greater activity in the building line, it is altogether likely that the prices of materials generally would be still farther advanced. At present, results are brought about altogether by the activity in business, and increased demands East for building materials. A revival of business on this coast, would most certainly add a local stimulus to prices, increasing them considerably beyond present figures.

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ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion	$1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion	1 25
On other inside pages, per square, each insertion	1 00

With reasonable reductions for larger spaces, and advertisements continued for six or 12 months.

A Card from Architects.

Believing that a well and ably conducted journal, devoted to Architectural, Mechanical, Sanitary, Scientific, and other kindred matters and subjects, is a necessity in this city, and judging from what has appeared in the QUARTERLY ARCHITECTURAL REVIEW, published by Messrs. Wolfe & Burnham during the current year, both in illustration plates and reading contents, we are led to the belief that the CALIFORNIA ARCHITECT AND BUILDING REVIEW, proposed to be published by the San Francisco Architectural Publishing Company from and after January, 1880, will be worthy of general support and encouragement, and that it will supply a long-existing want on this coast. *We therefore pledge our cordial sympathies personally, and hope that the enterprise will receive kindly recognition and liberal support from all Architects and Builders on the Pacific Coast, and from the public generally.*

DAVID FARQUHARSON,
WRIGHT & SANDERS,
S. H. WILLIAMS,
THOS. J. WELSH,
P. HUERNE,
JOHN MARQUIS,
P. J. O'CONNOR,
THEO. A. EISEN,
B. MCDOUGAL AND SON,
WM. MOOSER,
WM. CURLETT,
H. T. BESTOR,
MEEKER & BANKS,
W. C. HOAGLAND,
S. & J. C. NEWSOM,
B. HENRICKSON.
JOHN A. REMER.

The Theme of Conversation

in all quarters of San Francisco is the unprecedented prostration of business of all kinds, and especially in the building line. On the streets, at home, in the offices and circles of trade and commerce—everywhere the question is discussed, with but one conclusion among the intelligent classes. It requires but ordinary discernment to discover the true secret of the causes which have brought upon this city the business calamities which have prevailed during the past two or three years, and in so marked a degree during the year 1879, with but limited present prospect of a change.

In all matters of a general character, affecting the interests of the whole community, there must necessarily be some diversities of opinion in reference to points subservient to the grand fact in issue; but divested of these, the state of the case with us is easily comprehended. True, if we were to review all the features of the case in detail, the story would be a long one. But this is not necessary for present purposes. There are a few principal causes in all such cases, and an attempt to search for other than those fundamental and immediately involved, is unnecessary. We will therefore confine ourselves to four, in the following order:

First.—As primary, political corruption and official irregularities stands first and foremost. All that has ever been stated in regard to the "filthy pool of politics," is entirely applicable in the case of San Francisco; and it is humiliating to be compelled to admit that official dishonesty in its worst forms have been of such common practice in this city that the integrity of really honest men has sometimes suffered, and by thousands been questioned, upon the generally conceived principle that all office-holders must be dishonest.

Secondly.—The terrible mania among the masses for stock-gambling has been the cause of untold distress. Through the heartless designings and manipulations of a large majority of those who have controlled the mining interests of this coast, multitudes have been allured into the vortex of what has proven to be unwise and ruinous speculations, and millions of dollars have been drawn from the pockets of the laboring classes and business men through often repeated assessments, thereby extracting the life's blood of prosperity from the community. For when money is withdrawn from circulation, corresponding stringency and financial suffering must follow. And in this connection we are justified in saying that it would have been a blessing to San Francisco and its people if the "great bonanza" firm had never had an existence, and the ten-cent liquor-saloon on Washington Street had been continued under the personal management of Messrs. Flood & O'Brien.

If the curses of hundreds of thousands of injured people could affect the hereafter of the gentlemen composing that firm, the heat of their eternal abiding place will be far hotter than the fiery furnace into which, by order of the king, the three children of Israel, Shadrach, Meshach, and Abednego, were cast.

Thirdly.—The great bone of contention which furnishes the pretext for the political conflicts of the hour, the Chinese, is one which largely and directly concerns every citizen of the United States. We indorse the opinion that they are and will continue to prove a curse to any country other than their own, where they are permitted to settle in any considerable numbers. Their business men—merchants and commercial traders—are shrewd and farseeing; but the masses—the hordes of coolies—are to be dreaded as a blighting plague. They add nothing to the wealth or prosperity of any place where their presence is permitted. Their entire influence is to destroy the interest and prospects of all laboring classes, and produce humiliation and want among the poor of our own race who are compelled to toil for their daily bread. Experience the world over, fully establishes the fact, that in communities where the laboring classes are comfortably circumstanced, contentment, peace, and happiness abound; and want, misery, wretchedness, and disquiet exist in exact proportion with the impoverishment enforced upon the humbler classes. And as certain as that the sun shines, the establishment of Chinese labor in the United States, as a recognized order of things, will force upon our own people a humiliation and degradation which will be painful to contemplate, and a disgrace to those in authority who permit it.

Fourthly.—The three things mentioned have furnished a pretext for the organization of a *fourth evil*—a political hybrid quite as monstrous in character as either of the others, and in many respects far more disastrous to the interests of this city and State. Conclusively so, because its influence has broken down confidence; crippled business of all kinds; created discords and bitter antagonisms between classes of the community; established and encouraged a system of slanderous denunciation against every man and all classes of men not in accord with its teachings; by words and boastful declarations, held in contempt and defied the laws and authority of the State and general government; traduced and vilified the best men of our nation; through many of its mouth-pieces, threatened bloodshed and arson; caused conditions which have and will injure and impoverish this State more than ten years of uninterrupted prosperity will recover; been the means of reducing thousands to beggary, and thousands more of its adherents to positive want and distress, and wrought untold injury and mischief in a multitude of forms, without producing a single good result which in due time would not have been accomplished in a legitimate, peaceful, and honorable way, without entailing any of the serious consequences from which we as a community are now suffering.

In a word, it has produced a paralysis in all lines of business and enterprise, and if permitted to continue, will complete a prostration in this State, not designed for it by the manifold natural advantages so liberally provided by God and nature throughout its length and breadth.

There can be no objection to a multiplicity of political parties, when their leaders and prominent men are governed by reason, prudence, and fair and just judgment; but when impure, despotic, unlearned, turbulent, and unscrupulous men assume control, and gather the large majority of their followers and subservient adherents from the slums of civilization—persons who care not whether the city or State sinks or swims, so that they secure the fulfillment of their aims, purposes, and desires—it is high time that every honest tongue and pen should express their condemnation.

Although this is not a political journal, we feel justified, and have a right to refer to this matter, because, in common with all other professions and mechanical businesses, we have suffered and are still suffering from the withering, crushing influence of this fourth evil. Had there been a concerted, reasonable, determinate move made by any organization, for the single purpose of ridding this State of the Mongolian curse, and in an honorable and proper way, attacking and correcting all other existing abuses, we should have approved and sustained it. But no denunciation can be too severe for the rash, illiberal, and reckless course which has been pursued by a host of designing men, who have used the movement in question to enrich themselves, or effect a notoriety which they could otherwise never have secured, and for which they are not qualified, either in intellect, moral integrity, or education.

That there are some good-meaning men who sympathize with the movement cannot be denied, but they have stumbled in over the Chinese issue, which looms up so prominently before the laboring classes of all grades and departments, that they lose sight of the monstrous other evils which have been created, and cannot contemplate any other vein of thought, than that "the Chinese must go," at whatever cost or sacrifice to city or State interests. Consequently there is but one contemplation in sight, and that is continued dullness in all lines of trade and commerce, until this terrible state of things quiets down, or is by some means squelched.

We Have Come to Stay.

This journal has passed its experimental stage, and its permanency is assured. The liberal patronage extended in subscriptions and advertisements alone dispels all doubt upon this point, and our good friends need entertain no fear of failure in the regular monthly appearance of the REVIEW, but rather look for improvement in every department of the work. We ask indulgence for the evident defects in our illustrations. They have not so far been satisfactory, and no apologies are offered for them. But from and after our April number, we shall be able to make a much better showing.

Under past and prevailing circumstances, we are surprised at what has been accomplished. The disjointed condition of things was most inauspicious for any such undertaking. With business of all kinds fearfully depressed, all enterprises in part or as a whole suspended, thousands of mechanics out of employment, the very foundations of our city and State governments trembling in the balances of political strife, unwise and injudicious agitation pressing upon the arteries of business life, prospects for the future by no means cheering, dimes with the masses appearing of greater value than half-eagles used to be,—all these and many more of similar import were sufficient to restrain an attempt to establish a new journal of this kind. But in the face of these things, it has been accomplished, and with the dawn of better times, we feel confident of increased encouragement, which will be followed by increased energies and efforts on our part to improve and render this journal a welcome and appreciated monthly visitor.

To help us carry into effect all that we contemplate, we ask our kind friends to assist us in the matter of subscriptions. The commendations voluntarily extended are pleasing and encouraging, and it is hoped that kind words will be attended with kind acts, by each subscriber influencing others to add their names to our subscription list.

City Grades—Continued.

In the last issue of this journal we alluded to the defective system of official grades in this city, and now propose to refer to some of the thousands of consequent evils.

The most serious of these is that which so largely affects the public health. Arguments in reference to the unhealthfulness of wet and undrained localities are unnecessary, the facts being so well established by all experienced medical and scientific authorities; consequently when it is recollected that hundreds of acres within the thickly populated portions of the city stand at "dead level," it is safe to conclude and assert that a vast amount of sickness and ailments must ensue, in the form of malarious and other fevers, rheumatism, and diseases common in miasmic localities. It matters not how much rain may fall during wet seasons, there can be but little wash from them, and the vegetable and animal matter and other decomposing and putrefying street filth simply undergoes a washing and soaking process, without being carried off by flow of rain water to the sewers; while with a proper fall or grade in each block all surface *debris* would be washed away, the face of the streets be left in a cleansed and purified condition, and the sources of sickness and disease removed. In this particular the established grades are a cruel and perpetual evil, from which personal sufferings are inflicted upon thousands, to say nothing of the probable loss of life which occurs from this cause yearly, and the expenditure of hundreds of thousands of dollars paid in doctor's bills, funeral expenses, medicines, etc.

The yearly loss in extra expenses and damages entailed upon merchants and business men are large. It is a well-known fact that hundreds of cellars in the business portions of the city below Sansome Street and south of Howard are flooded every year during the rainy season, and that in many cases pumps have to be kept in almost continuous service to free them, and the loss and damage to goods and merchandise have been very large. All this in the face of the fact that the cellars so flooded are only from five and one-half to seven feet deep. There are hundreds of property owners who would like to have cellars under their buildings if it were possible to secure them free from wet and water; so that in this regard a very bad state of things exists on account of indefensible
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STITUTION.

e and Object.—Section 1. This
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of the Society is to extend the
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fellowship; to elevate the standing and sustain the dignity of the profession, and to make the efforts of those engaged in the practice of architecture for the general advancement of the art.

Sec. 3. The means of accomplishing this end shall be: Regular meetings of the members; the reading and discussion thereat of essays and papers on subjects of professional interest and importance; lectures; the formation of a library; the collection of designs and models, and any other means which may promote the object of the organization.

ARTICLE II. *Of Meetings.*—Section 1. The regular meetings of the Society shall be held on the second Wednesday of every month, at such hour and place as the Society may determine. A quorum to consist of not less than seven members.

Sec. 2. Special meetings may be called at any time by the President, at the written request of any three members.

Sec. 3. Notice of meetings, either printed or written, shall be sent to all members two days before the same shall be held.

ARTICLE III. *Of Membership.*—Section 1. The members of the Society shall consist of architects throughout the State who are, or who have been, engaged as principals in the practice of architecture.

Sec. 2. Associate members, to consist of students employed in the offices of architects, who shall exercise all the rights and privileges of members, except that of voting.

Sec. 3. All elections for members, or associate members, shall be by ballot, a majority of two-thirds of the members voting being sufficient to elect.

Sec. 4. Each member on joining the Society shall sign the Constitution and By-Laws, but no initiation fee shall be required.

ARTICLE IV. *Of Dues.*—Section 1. The dues for members of the Society shall be one dollar per month, payable half-yearly in advance. The dues for associate members shall be fifty (50) cents per month, payable half-yearly, in advance.

Sec. 2. No member over six months in arrears for dues shall be entitled to vote, or to hold office.

Sec. 3. Members over twelve months in arrears for dues shall be considered as having withdrawn from the Society, and shall only be reinstated by being balloted for as at first, and upon the payment of all back dues.

ARTICLE V. *Of Officers.*—Section 1. The officers of the Society to consist of a President, a Vice-President, a Corresponding Secretary, a Recording Secretary, a Treasurer, and such other officers as the Society may think proper to appoint.

Sec. 2. The officers to hold their positions for one year, or until their successors are elected and qualified.

Sec. 3. All elections for officers shall be by ballot, a simple majority only being necessary to a choice.

Sec. 4. The election for officers to be held at the regular meeting in December (after the first election), and the new officers to be installed at the first meeting in January.

Sec. 5. The President shall preside at all the meetings of the Society, and shall conduct the same in accordance with parliamentary rules, per Cushing's Manual. He shall also superintend the official acts of all other officers of the Society, and see that their duties are properly discharged. In voting, other than by ballot, the President shall have the casting vote.

Sec. 6. The Vice-President shall assist the President in the discharge of his duties, and in the event of the President's absence, death, or removal, the Vice-President shall perform the duties of President.

Sec. 7. The Corresponding Secretary shall conduct all correspondence on the part of the Society, keeping copies of the same, and reporting, from time to time, as required by the Society.

Sec. 8. The Recording Secretary shall keep the record of the proceedings of the Society in a suitable book for the purpose. He shall form and keep a register of the names of members and associates; keep a separate account for each member; collect and pay over to the Treasurer all moneys for dues, etc., and report at the regular meetings in January and July. He shall also issue all notices of meetings when directed by the President, with the authority of the Society.

Sec. 9. The Treasurer shall receive all moneys from the Recording Secretary, keep a just and accurate account thereof, and pay the same out only upon an order signed by the President and countersigned by the Recording Secretary. He shall report

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There is another feature of the case which draws large amounts of money from the pockets of property owners. In the earlier day of this city, when wages were twice that of the present day, but when "dumps" were plenty and convenient, the cost of digging cellars was light, running from ten to eighteen cents per cubic yard, while for several years back, because the convenient "fills" were completed, the cost for the same work has been from thirty to sixty cents, with no probability that the expense for this class of work will be any less in time to come, as "dumps" are few and far between, and in distant localities. All this in a city where the high grade is 328 feet above base, and hundreds of acres of the low portions of the city perfectly level. And so long as the city stands this evil will continue growing greater daily, because places of deposit for the removed material are becoming scarcer and more distant every year. In this way owners of property have entailed upon them large outlays of money which would not have been necessary had proper grades been established, and greater "fills" been provided.

The city also comes in for a share of the consequences resulting from this mistaken system of grades, in the shape of excessive cost in cleansing sewers. It cannot be otherwise than that sewers which have but little or no grade should fill and choke with *debris*, thousands of tons of which would be washed away if proper grades had been provided; or, if not washed away into the bay, might have been emptied into receiving vaults or cisterns, and removed therefrom for manuring purposes.

These facts are sufficient to sustain what we have stated, that a very great engineering blunder has been committed in fixing the established grades where they are, particularly in view of the fact that there existed every natural facility and means to secure perfectness by proper and sufficient "cuts" and "fills."

Hot Water Tanks.

[FROM A LADY CORRESPONDENT.]

MR. EDITOR:—Will you be so kind as to state your views about using wood tanks for heating water from the kitchen range. Some of my lady friends say they are good, and others say they do n't work right. Now you must have some experience with them, and I should like to know what you think of them. Please answer in your next number.

MRS. G. H.

We have substituted wood tanks for copper boilers in a number of cases, and find them to work well, when properly fitted up and connected. But it requires skill and judgment to make them a success. The reason why they sometimes do not give satisfaction, is owing to defects in the arrangements and connection of the pipes. This appears so simple, that every man who can use the soldering iron imagines that he is fully competent, while in fact he may have no practical, nor even a correct theoretical knowledge of how the work should be done. It requires a workman skilled and experienced in this particular thing. But sometimes owners refuse and reject the services of the right man, because some boasting pretender may have offered to do the work for a smaller amount; and the proposition of cheapness misleads the owner to the acceptance of the lesser figure, and the engagement of the cheaper man, only to learn by experience and provoking annoyances, that savings of this character are generally more expensive in the end. But what inferior men lack in mechanical qualifications, is amply substituted by a glib tongue, from which seductive arguments and reasonings flow with such specious force, that innocent parties are often deceived by them.

A nicely told story of any kind secures attentive listeners, and designing persons frequently secure advantages by the free use of well-directed talk. The greatest error on the part of owners is to appreciate and favor anything which promises to save outlay of money; but in matters mechanical, economy in first cost is the worst kind of folly. For when a piece of work is improperly executed at first, it is ever afterward a source of annoyance and expense; and the continually recurring cost of repairs soon eats up much more than the amount which may have been saved, with never-ending perpetuation of outlay. If a house as a whole is improperly constructed, tinkering, repairs, alterations, etc., follow, attended with dissatisfaction and unpleasant reflections. Or if defects are confined to some particular branch or portion of the work, the annoyances are but little diminished, for small things sometimes vex as much as those of a greater magnitude, because it is so evident that they might have been avoided by a reasonable degree of care.

We therefore advise those who desire to use wood tanks for hot water instead of copper boilers, to place the matter in the hands of some qualified architect, who understands the matter, and is not also a *mere pretender;* engage the right plumber, and have the work done as it should be, and we guarantee satisfactory results.

The advantages of the tanks over boilers may be stated as follows:

First.—They remove from the kitchen a fixture which is by no means ornamental, unless polished almost daily, and which sometimes occupies room which might be used for other purposes.

Second.—The omission of copper boilers lessens labor for the servant or housewife. This is desirable in either case; for if the wife has to do the work, it multiplies her duties; and if servants are engaged, their time can be employed in other duties; and sometimes it is well to lighten the labors of hired help as much as possible.

Third.—A tank of twice or thrice the capacity of a forty-gallon boiler can be heated without any extra expense of fuel, where a reasonable amount of cooking is done. With a tank, four or five successive baths may be taken, as warm as two from a forty-gallon boiler. Where the circulation pipes are properly connected, the whole volume of water in the tank is subjected to the heating process, and if the discharge from the tank is of the right kind, the hottest water flows off until it is all used. But it is not only possible, but often the case, that a considerable quantity of hot water remains in the tank, when cold water only can be obtained from the hot-water pipes at the bath-tubs, sink, etc. This is owing to defective work. If the outlet is of the right kind, every drop of hot water can be drawn off through the distributing pipes.

A Swindler.

On or about the 22nd day of January last, a fellow called at the office of this journal, "to see about an engagement as canvasser." He talked well and intelligently; related his extensive experiences in canvassing in New York and elsewhere; said that he was the son of one of the original editors of the *Aldine;* that he was engaged in the preparation of a large advertising map in this city, but would have some leisure to attend to any little outside matter that would compensate for time and trouble; that he was a first-class canvasser, etc. Being of good address, and certainly well up in the line of deceptive talk, he so far overcame all doubts on our part, that we innocently fell into his net, and handed him ten printed receipts, to be given to subscribers, as evidence of their payment of subscription amount. He then wrote his name and address as, "G. R. Drant, No. 54 Third Street," with the understanding that he would "try it for a day or two." The second or third day after the interview we were informed of his movements, which led us to believe that he had exhausted the ten receipts handed to him, and from representations made to us, it became satisfactorily evident that he was a swindler. As the result of notices, which appeared in the daily papers, several parties called at this office, and gave the information that a swindler, sometimes giving the name of G. R. Drant, and at other times G. R. or D. R. Holmes, had plied his swindling operations in Washington Territory, Oregon, etc., in connection with an advertising map, for which he received money in advance on account of advertisements, and his patrons are still waiting for the appearance of the map. His name was also associated with some unlawful transactions at Los Angeles, in connection with which one Pettibone also figured, and is said to have been arrested and imprisoned.

Since writing the foregoing, we have heard more of the rascal's operations, and seen persons from whom he has collected money for this journal, who were thoughtless enough to hand him the amount of twelve months' subscription, without taking any receipt. The receipts handed to us are all signed G. R. Drant, but he has also used the name of G. R. or D. R. Holmes, and G. R. or D. R. Perkins. How many more aliases he uses, we cannot state; but he doubtless finds enough for his purposes. He is about twenty-eight to thirty-four years of age, five feet nine inches to five feet 10 inches high, nose of the Roman type; naturally inclined to light complexion, but sometimes flushed by the use of liquor; free talker; great boaster, and in January wore high-crowned hat and a shabby-genteel suit of clothes. That he is a bold and artful swindler, there can be no doubt. He stopped at the Arion House, Page street, for a week or so prior to the 24th of February. We have sworn out a warrant for his arrest; but vagabonds of his stamp, who make disguises and deceptive tricks a study, sometimes elude arrest. We, however, warn and caution all parties against the above-described villain.

Questions and Queries.

We may not be able to answer satisfactorily every question that may be propounded, but will do so to the best of our abilities. We hope therefore, that those who have unsolved, doubtful, or disputed propositions in mind will lay them before us in as intelligible shape as possible, and we will cheerfully give our views and opinions. The object and purpose of this journal is by no means selfish or personal, but as broad and extended as the interests represented through its columns. We extend the welcome hand to every architect, contractor, mechanic, owner, physician, engineer, and all classes of our fellow-citizens, inviting them to assist in rendering this a journal of universal interest. We shall seek to fill its columns with useful and instructive matter, but greater scope will be given to its usefulness, if all who we so cordially invite will spend a little time in preparing their own thoughts and suggestions for publication. Such a course would secure a considerable amount of valuable information, from which important results of greater or lesser magnitude might be derived.

The more learned and intelligent of our readers are masters of their own pens, and capable of presenting their views in writing in far better shape than would be possible with ourselves. But there are many whose minds are stored with most excellent ideas, who feel incompetent to reduce them to writing for publication. To such we say, give us your views in the best form you can, it matters not how crude, and if a little remodeling is required to render the production readable and satisfactory, we will assist you to the extent of our abilities.

We know that there are uneducated and uncultured minds filled with beautiful conceptions and pure thoughts, which are lost to the world, because fortune and circumstances have rendered it impossible for them to assume the position among men for which, in mind and nature, they are fully qualified. We recognize the correctness of this statement, and shall be most happy indeed if intelligent men of all classes and callings will avail themselves of the use of our columns for the presentation of good, practical, and interesting suggestions, or matured views upon subjects pertinent to the character of this journal.

The French Metre.

The French metre is intended to be the one ten-millionth part of the distance from either pole of the earth to the equator; but after it had been introduced into use, errors were discovered in the calculation employed for ascertaining that distance; so that the French metre, like the British standard yard, is not what it was intended to be. By the British standard, the length of the metre is, approximately, 1.093633 yard; or 3.280899 feet; or 39.37079 inches. By the United States standard it is very approximately, 1.09.35697 yard; or 3.280899 feet; or 39.368505 inches; the British yard, foot, and inches being about one part in 17230 shorter than in the United States, which is equal to 3.677 inches in a mile; or 1-14 inch in 100 feet.

A case of typhoid fever in Springfield, Mass., is charged to the bad sanitary arrangements of the school-house. Water closets are in the basement of the building with school-rooms over them. The steam heat tends to drive the foul and fever-breeding odors and germs all over the school-house.

It has been Intimated

That we have sometimes used very expressive, if not severe language in this journal, toward certain classes of mechanics. This is a mistake, for we have always expressed admiration for qualified mechanics, and made honorable mention of them. It is the pretenders, those who *claim* to be mechanics without enjoying any remarkable degree of a rightful title to the distinction, upon whom we have reflected. All the avenues of mechanical operations are overshadowed by the presence of incompetent parties, who rush to the front, and by means neither wise nor prudent, obstruct the pathway of qualified men, demoralizing operations to such an extent that they neither earn an honest living themselves, nor leave it possible for others to do so. It is certainly a hardship upon those who by hard toil, experience, and earnest application, and the exercise of sound judgment, have perfected a proper knowledge of the mechanical arts, to be crowded to the wall by men who have merely picked up a few imperfect ideas, with which in practice, they override all right rules of procedure, and create conditions unprofitable to themselves and hurtful to others.

The Contrast.

While the great majority of people in San Francisco are groaning under the terrible pressure of dull times, such as were never before known or experienced on this coast, the intelligence received from all other quarters of the United States represent a widely different condition of things. From every section of the land the echoes of business activity are heard and the song of prosperity sung. Under this aspect of affairs it is proper to inquire as to the cause, and in doing so the reasonable answer is at hand, and is sufficiently noticed in the leading article in this issue. The tendency of political turmoils has been to drive capital away from us and stay the hand of enterprise. We, as a people, have either been guilty of acts of cruelty to our own interests, or have remained quiet and unmoved, while others have hewn away at the root of the tree of our prosperity. In the meantime, capital has silently spread its wings and flown to more congenial climes, or nestled away in secure hiding-places, leaving its revilers to cry for bread, while with indifferent concern the golden bird has rested upon its secure perch, or gone where open hands and hearts bid it welcome. While we have said go, or permitted others to scare it away, a thousand doors are open in other cities and places—ten thousand tongues crying, "come, come, come;" and from our own caused loss other communities are enriched; and while we grieve and lament over our own wretched condition, others pick up the golden crumbs we have foolishly thrown away, and are made happy because we have been foolish to our own interests.

Society of Architects.

We again refer to this subject, and as there are but few copies of the Constitution and By-Laws of the "CALIFORNIA INSTITUTE OF ARCHITECTS," of San Francisco, organized in 1869, we publish them in full for the benefit of those who are not provided with a copy, hoping it will stimulate to some decided action on the part of the architects of this city, in reorganizing a so-much-to-be-desired society. The organization of 1869 has long since ceased to exist in any active shape. Some of those who were then prominent members have removed to other cities, some have passed away to the long and silent slumbers of the grave, and in their stead many new men have commenced the practice of the profession in this city; so that in a reorganization, co-operated in by all the architects in San Francisco, new men will appear, and with the old and new elements working in harmony, great good may be accomplished. We have heretofore pressed this question so earnestly that we will say no more at this time, other than to present the Constitution and By-Laws of the old organization *in extenso*.

CONSTITUTION.

ARTICLE I. *Name and Object.*—Section 1. This Society shall be known by the name of "THE CALIFORNIA INSTITUTE OF ARCHITECTS."

Sec. 2. The object of the Society is to extend the artistic, scientific, and practical knowledge of its members; to facilitate their intercourse and good-fellowship; to elevate the standing and sustain the dignity of the profession, and to make the efforts of those engaged in the practice of architecture for the general advancement of the art.

Sec. 3. The means of accomplishing this end shall be: Regular meetings of the members; the reading and discussion thereat of essays and papers on subjects of professional interest and importance; lectures; the formation of a library; the collection of designs and models, and any other means which may promote the object of the organization.

ARTICLE II. *Of Meetings.*—Section 1. The regular meetings of the Society shall be held on the second Wednesday of every month, at such hour and place as the Society may determine. A quorum to consist of not less than seven members.

Sec. 2. Special meetings may be called at any time by the President, at the written request of any three members.

Sec. 3. Notice of meetings, either printed or written, shall be sent to all members two days before the same shall be held.

ARTICLE III. *Of Membership.*—Section 1. The members of the Society shall consist of architects throughout the State who are, or who have been, engaged as principals in the practice of architecture.

Sec. 2. Associate members, to consist of students employed in the offices of architects, who shall exercise all the rights and privileges of members, except that of voting.

Sec. 3. All elections for members, or associate members, shall be by ballot, a majority of two-thirds of the members voting being sufficient to elect.

Sec. 4. Each member on joining the Society shall sign the Constitution and By-Laws, but no initiation fee shall be required.

ARTICLE IV. *Of Dues.*—Section 1. The dues for members of the Society shall be one dollar per month, payable half-yearly in advance. The dues for associate members shall be fifty (50) cents per month, payable half-yearly, in advance.

Sec. 2. No member over six months in arrears for dues shall be entitled to vote, or to hold office.

Sec. 3. Members over twelve months in arrears for dues shall be considered as having withdrawn from the Society, and shall only be reinstated by being balloted for as at first, and upon the payment of all back dues.

ARTICLE V. *Of Officers.*—Section 1. The officers of the Society to consist of a President, a Vice-President, a Corresponding Secretary, a Recording Secretary, a Treasurer, and such other officers as the Society may think proper to appoint.

Sec. 2. The officers to hold their positions for one year, or until their successors are elected and qualified.

Sec. 3. All elections for officers shall be by ballot, a simple majority only being necessary to a choice.

Sec. 4. The election for officers to be held at the regular meeting in December (after the first election), and the new officers to be installed at the first meeting in January.

Sec. 5. The President shall preside at all the meetings of the Society, and shall conduct the same in accordance with parliamentary rules, per Cushing's Manual. He shall also superintend the official acts of all other officers of the Society, and see that their duties are properly discharged. In voting, other than by ballot, the President shall have the casting vote.

Sec. 6. The Vice-President shall assist the President in the discharge of his duties, and in the event of the President's absence, death, or removal, the Vice-President shall perform the duties of President.

Sec. 7. The Corresponding Secretary shall conduct all correspondence on the part of the Society, keeping copies of the same, and reporting, from time to time, as required by the Society.

Sec. 8. The Recording Secretary shall keep the record of the proceedings of the Society in a suitable book for the purpose. He shall form and keep a register of the names of members and associates; keep a separate account for each member; collect and pay over to the Treasurer all moneys for dues, etc., and report at the regular meetings in January and July. He shall also issue all notices of meetings when directed by the President, with the authority of the Society.

Sec. 9. The Treasurer shall receive all moneys from the Recording Secretary, keep a just and accurate account thereof, and pay the same out only upon an order signed by the President and countersigned by the Recording Secretary. He shall report

at the meetings in January and July, and shall give a bond to the President, if required, for the faithful performance of his duties.

ARTICLE VI. This Constitution may be amended by a vote of two-thirds of all the members at any regular meeting of the Society; but notice of proposed amendments must be given in writing, at a regular meeting, two months before the same shall be considered.

BY-LAWS.

ARTICLE I. The Order of Business at the regular meetings of the Society shall be as follows;

1. Reading of Minutes.
2. Reports of Committees, or Officers.
3. Elections, or Ballotings.
4. Unfinished Business.
5. New Business.
6. Reading of Papers, Discussions, or Lectures.

ARTICLE II. The members of this Society earnestly desire to establish a community of feeling, to extend kindness, communicate information of interest and benefit, and to use all honorable means for the protection of the rights of each other.

ARTICLE III. It shall be the duty of all architects, as members of this Society, to assume and sustain their proper position as chief directors of all work under their charge; to allow no interference from any quarter; and to discourage and reprobate the practice of undertaking work at the instance of second parties.

ARTICLE IV.—No architect shall be countenanced, or tolerated, by this Society in any attempt to supplant, by underbidding, or otherwise, a fellow-member in the rights and prerogatives of his position, when he shall have been specially engaged for any work.

ARTICLE V.—The following outline of charges, as being those now usually and properly made for architects' services in this city and State, will receive the sanction and indorsement of this Society:

New Buildings, etc.—The usual remuneration for an architect's services, except as hereinafter mentioned, is a commission of five (5) per cent. on the total cost of the works executed from his designs; besides which, all traveling and other incidental expenses incurred by the architect are paid by the employer, who is also chargeable, under certain conditions, as hereinafter mentioned, for time occupied in traveling.

But for all works in which the art required is of a high kind, and the expenditure mainly for skilled labor and not for materials—that is: in designs for the furniture and fittings of buildings, for their decoration with painting or mosaic, for their sculpture, for stained glass, monumental, and other like works—the architect's charge is not made by way of commission on the cost; nor does it depend upon the time employed in making the design, but is regulated by special circumstances, and varies according to the skilled and artistic power of the architect.

A commission of two and one-half (2½) per cent. is to be charged upon such works as sculpture, stained glass, and others of a similar nature, for which the architect does not give the design, but arranges with the artists, or with the tradesmen, and directs the work generally.

In works under $3,000 in amount, five per cent is not fairly to be considered as remunerative; and in such cases it is just to the employer as well as to the architect to charge by time, or by a scale, varying from ten per cent. for works under $500 to five per cent. on amounts above $3,000.

The commission is to be charged upon the whole cost of the work executed, with the addition of two and one-half (2½) per cent. upon any omissions.

The architect is entitled, during the progress of the building, to payment on account, at the rate of five per cent. on the installments paid to the builder, or otherwise to half the commission on the signing of the contract, and the remainder by installments as above.

Traveling.—All traveling expenses are to be charged extra. These rules suppose the work to be executed within an easy distance of the architect's office; but if work is executed at a considerable or inconvenient distance from it, an allowance beyond the five per cent. ought to be made for the time occupied in traveling, in addition to the actual expenses.

Extra Services.—The percentage does not cover professional services in connection with negotiations for site, arrangements respecting party walls, nor services incidental to arrangements consequent upon the failure of builders whilst carrying out work; but all such services are charged for in addition, the basis for charge being the time employed.

Alterations in Design.—Supposing that the employer, after having agreed to a design, and had the drawings prepared, should have material alterations made, an extra charge may be made, according to the time occupied.

If the architect should have drawn out the design complete, with plans, elevations, sections, and specification, ready for estimate, the charge is half the usual commission above named.

Alterations of Buildings.—For works in the alteration of premises, the remuneration may be increased according to the time, skill, and trouble involved.

Duties of the Architect.—All of the following requirements for buildings are included in the ordinary charge of five per cent.:

Preliminary sketches.

Working drawings and specifications sufficient for an estimate and contract.

Preparation of contract and bond if required.

Detailed drawings and instructions for execution.

General superintendence of works (exclusive of clerk of works).

Examining and passing the accounts, and certifying to payments.

Preparing rough estimates of cost by cubing or otherwise.

An architect is bound under the five per cent. charge, to provide one set of drawings, and one set of tracings, with duplicate specification; it being understood that the architect is paid for the *use* only of the drawings and specification, and that they remain the property of the architect.

Valuations.—The following definite charges are recognized for valuation of property:

The charge throughout is one (1) per cent. on the first $5,000, and one-half (½) per cent. on the remainder up to $50,000. Below $5,000, and beyond $50,000, by special arrangement. These charges do not include traveling expenses, nor attendance before juries, arbitrators, etc.

Per Day.—The charge per day which may be made by architects depends upon their professional position; but the minimum charge is fifteen dollars per day. Five hours shall be considered as a day's work.

Clerk of Works.—In works of importance, where a clerk of works is necessary, he is to be chosen by the architect, and paid by the owner.

Competition,—In all cases where designs in competition are solicited, the architects accepting should receive a true and definite list of those against whom they are to compete, and should also be paid a reasonable sum for their services, according to the extent of the work, whether successful or not.

The sum offered as premium should never be merged in the architect's usual commission, but should be considered an honorary reward for the skill displayed, and as an offset to the risks and uncertainties of a competition.

Sketches and Consultations.—In cases where an architect prepares sketches for work, or is consulted and gives advice, and his services are not further required, charges for said sketches or consultations are to be made—the basis of charge being the time employed. If the sketches shall have been studied, and drawn out so far as to exhibit a complete design, the charge is one (1) per cent. on the estimated cost of the work; the sketches in all cases remaining the property of the architect.

Superintendence and Detail Drawings.—In the making up of the five per cent. usual commission, two and one-half per cent. is to be considered as the proper apportionment for the contract drawings and specification, one and one-half (1½) per cent. for the detail drawings, and one (1) per cent. for the superintendence. No member of this Society shall receive any fee or compensation for his services from any person or persons other than his original employer.

ARTICLE VI.—It shall be the duty of all members of this Society to aim at excellence in conduct and qualification—to have an eye single to the interests of their employers, and to the advancement of the art; and while, in nature of society and business, each will come into competition with the other—our emulation should be to perform the *best* work, rather than the most of it.

ARTICLE VII.—These By-Laws may be changed or amended at any regular meeting of the Society, by a vote of two-thirds of the members present, and voting; notice having been given in writing of any proposed alteration one (1) month before the consideration of the same.

Double Floors.

The strength and healthfulness of buildings are greatly increased by laying double floors, particularly in principal stories; and the more carefully the first tier of boards are laid the better. Second-class material will answer the purpose, but it should be tongued and grooved lumber, with closely fitting joints, filling out to the outside face of the wall-studding, leaving no holes or cracks at any part. And if laid diagonally, so much the better. The value of such under-floors are great. First, in adding strength to the building, as every piece of lumber applied and firmly nailed has this effect, and none more so than the floors. Argument upon this point is unnecessary, as the fact is beyond controversy. Secondly, they are valuable in a sanitary point of view in any case, but particularly so where unfinished cellars occur, or the building is placed within a few feet of the ground. In all such cases, an impure and unhealthful atmosphere accumulates within the cellar walls, and naturally find a passage-way up into the stories above, between the studding in frame buildings, and through such holes, cracks, and openings as will permit its ascent. To prevent this, every possible precaution should be used, and that of laying double floors is comparatively inexpensive, and certainly efficacious, provided they are laid with proper judgment and care, so as to leave no holes or cracks for the ascent of foul air. They also give greater solidity and warmth, and to a certain extent, deaden sound. There are so many advantages and benefits to be derived from double floors, that their adoption is to be commended in all cases.

"Modern Improvements"

Come in rapid succession. A vast amount of time has been exhausted in devices for sash-hangings, and other fixtures in connection with the weighting and hanging of sash. Among the most improved are the "*Giant*" *Sash Chains and Sash Fixtures*, which from all accounts received from the East, are very popular, by reason of their simplicity, great strength and durability; the ease with which they are applied, and their practicability in connection with the commonest pulley. But to secure their more perfect working, a special flat pulley accompanies the chain. The metal of which these chains are made is a regular bronze mixture, which does not corrode or oxidize, by reason of atmospheric changes, or exposure to frost or salt water. The No. 1 chain is subjected to a test of 400 lbs. at the manufactory, and the lighter chains at proportionate tests; so that there can be no question as to their strength. From all accounts, they are in use in many of the finest public and private buildings and residences in the Eastern States, and in J. C. Flood's mansion, at Menlo Park, in this State. There are some excellent grades of hemp, cotton, and other sash-cords, which wear very well, but it should be apparent and self-evident, that a strong metallic sash-hanging is more durable, and in the long run more economical than the best flexible cord, made of material which diminishes in strength with each returning day's use. Messrs. Dunham, Carrigan & Co., are the agents for this city and coast.

The Reason Why

This journal is not full of interesting matter in reference to building interests, is because there is so little that is interesting occurring in connection with building interests, except the interesting aspect presented in their almost entire prostration—not one in twenty-five of our contractors having scarcely anything on hand, and but a very limited number of journeymen finding employment. This state of affairs is likely to continue until a change in political and general matters transpires, and demoralized public confidence revives and takes the place of present inauspicious conditions. No community can be in a healthy and prosperous state, when its members are at sword's points, the one part being offensive and aggressive, and the other defiant and unyielding, because of harsh threatening and unreasonable assaults and demands. Capital has been assaulted, and, confident in its strength, has retired within its own defenses, where it rests secure; while the attacking forces which surround the golden citadel, are simply exhausting their resources, impoverishing themselves, and creating hardships and sufferings for thousands of innocent parties, who abominate the presence of Chinese in our midst, but have no sympathy with a movement which holds up as its incentive to political action, the Mongolian question, while under its cover they commit acts, which are in their very nature calculated to, and have, blasted the prospects of this city for years to come.

The history of the world presents no parallel where the less fortunate classes have been able to climb from humble circumstances, to others of affluence and wealth, through any such state of things as now exist in San Francisco. Their tendency is to demoralization and ruin, and while seeming success may sometimes temporarily occur in movements of such character, the final result is always against those who attempt unnatural and injudicious measures. Since the days when men began to multiply upon the face of the earth, the richer and poorer classes have always existed, and through the long period of thousands of years, the order of things has continued, that wealth flows in unequal channels, filling the coffers of the few, while the masses obtain no more than is necessary for their wants, and sometimes not so much. So that if a movement, such as has devastated this city and State during the past three years, happens to succeed in accomplishing the pretended aims and purposes of its agitation, it will have done what no generation of men, during the history of humanity, has been able to accomplish, and which is strongly in contrast with all that has ever been, and so unnatural in character, that it amounts, simply to a wild delusion, which in time must and will fail. We say it is unnatural, because all men are alike, in nature and desires, and were it possible that the movers and workers of present conditions, should obtain the chief and supreme object of their labors—riches without work or legitimately earning them—they, in turn, would form the class against whom present railings and denunciations are hurled by themselves, and they would become the railed at and denounced, and consistency would render necessary another host of agitators to howl down and crush those who now control the new-fangled political machine. And so it would be, generation after generation, new agitation, new howlings and new howlers, with no peace or security to any, to government or people. When this thing ends, there will be matters of interest in the building line to report.

Skilled Labor.

It is to be regretted that proficiency in the mechanical arts does not always receive deserved recognition. Men who are thoroughly competent to execute faithful, honest work in the various branches of mechanism, meet with less success than others who substitute cheek for skill, with which they accomplish more for themselves financially, than men who are infinitely superior as mechanics. Really competent men seldom have much to say in their own behalf. Confident in their abilities to perform satisfactorily anything they may undertake, there appears to them no necessity to bolster up their claims by boastful declarations; while those who enjoy an imperfect knowledge of their business, naturally feel the necessity of "talking up" their qualifications, and in doing so, the representations made by no means truthfully apply to themselves in all cases. But it answers the purpose, for it more generally secures them engagements and contracts over better men; and owners seem to feel better satisfied with a little well-directed talk, however much deceptive intent there may be concealed in the fine-spun yarn of personal qualifications. We do not mean to say that owners are ignoramuses—by no means. It is more their innocence and inexperience, than lack of ordinary business sense, that gets them into difficulties. They *mean* to be prudent, but as we have frequently stated, the desire to "save a little" controls their prudence; and when they get into trouble of any sort by the employment of second-rate men, the sympathy extended to them by other mechanics, and architects too, is, "it serves him just right; he should not have let his work to a botch." Nor are they to be blamed for such expressions, for the title of "Honest Mechanic" once possessed an honorable meaning, which has been torn from it by the trickery and degrading practices of certain classes of men. All this works to the disadvantage of practical and competent mechanics; for when more frauds than honest men are found in any business pursuit, whether mechanical or professional, the majority influence is made the rule, and good men suffer.

"Honest Mechanic, "Honest Miner," "Honest" Men Generally.

Such terms once possessed a practical meaning, by which the actions of men were governed. A value used to be placed upon integrity and consistency to truth, and condemnation meted out to infidelity. But now-a-days it is necessary to criticise men's words and actions, and it is no sure thing that one's best friend will not deceive him. It is exceedingly doubtful whether the love and practice of honesty and truth has advanced and improved of late years. There is any amount of clamoring for these beautiful and high-sounding terms; but they are only claimed, not possessed, as a rule. They hang as do leaves upon the tree, to be blown about by the winds of circumstances, and the stronger the breeze the more they are shaken—sometimes until they fall to the ground, and are trodden under foot. There are as many promises broken as kept, and as many pledges violated as honestly observed. It is necessary for one who makes a proposition, and receives a pledge from another, to consider well the probabilities of its performance before he invests too great faith therein. There are failures in every department of life, and in none more than in the promises and good intentions of people, who, at the time they are made, honestly *intend* to fulfill their pledges and promises; but circumstances often materially interfere with good intentions. We do not mean to say that all men are false, faithless, and dishonest, or that there are not many most excellent people, who love and practice truth and honesty, as they *appear to them.* But taken as a whole, wrong deductions and conclusions are very common, and honest intent is often submerged in the filthy waters of unjust misrepresentations. It is all well enough to prate and preach honesty and its co-equal virtues, but words alone are no proof of men's honesty. The veriest rogue, as well as the most worthy and honorable of our race, may, with the same expenditure of breath, say that he is honest; but men's true characters are only fully established by their acts. "By their fruits ye shall know them."

A. VAN DER NAILLIEN, Professor of Engineering, 24 Post street, has received the following notice from the Department of the Interior. He says, that if some of our California engineers wish to compete for the prize, he can give them ample information about the formation of the soil upon which the Belgian ports are to be erected. He is thoroughly acquainted with the delta of the Schelde near Antwerp, the location of the proposed ports:

"NOTICE.—By a decree of December 14th, 1874, His Majesty the King of the Belgians offered an annual prize of 25,000 francs for the encouragement of intellectual effort.

"The prize for the year 1881, for which authors of all nations may compete, will be awarded *to the best work on the means of improving the ports established on low and sandy coasts, like those of Belgium.*

"Foreigners desiring to compete for this prize will be required to send their works, either printed or in manuscript, to the Minister of the Interior, at Brussels, before the first day of January, 1881.

"A manuscript work obtaining the prize must be published in the course of the year following that in which the prize shall have been awarded.

"The award will be made by a jury appointed by His Majesty the King of the Belgians. This jury will be composed of seven members, three of whom are to be Belgians, and four foreigners of different nationalities."

PLEDGE OF COMMERCIAL PAPER.—While a person holding goods or personal chattels in pledge may sell them to pay the debts after maturity, a pledgee of commercial paper, in the absence of a special contract, has no right to sell such securities, but must collect them, and after paying his own debts he must account to the pledgor for the balance.—Union Trust Co. *v.* Rigdon, Sup. Ct. Ill.

Economy

In the erection of buildings is all well enough, when not practiced to too great an extent. But when important and essential health and comfort considerations are sacrificed to penuriousness, it exhibits a lack of prudent judgment which generally entails undesirable consequences. Where an owner builds for his own family's occupancy, and has the means to accomplish it, he is not wise if he leaves anything undone, which will secure healthfulness and increased comforts to himself and loved ones. Life is incumbered with enough constantly occurring evils, to render it in thousands of cases scarcely desirable. And if to these, by willful personal acts or neglects, others are added, it becomes a burden. Yet many overlook, and are willing to sacrifice everything to protect their pockets and purses, and rather than incur an outlay which will return them the riches of good health and daily comforts, are content to suffer in numerous ways, to enable them to hold on to money which in time passes into other hands—often to be squandered. If in anything one should be liberal in the outlay of his money, it is in the erection of a home dwelling, the citadel and center of all that is holy and dear in life, where the crystal springs of peace, pleasure, and hope should perpetually flow, and life find its purest joys. The more perfect therefore its surroundings and appointments, the more complete will be its enchantments and delights, and money saved by unwise, compromising economies, which in any manner lessen these, is folly in the extreme. Yet it is possible, and many have been guilty of just such stupidity, in refusing to spend enough money to secure buildings free from those defects which cause sickness and sometimes death in their families. There is a science in the building of houses properly, not fully understood by all architects and builders, nor by a large majority of owners. Hence the necessity of securing the services of the most competent architect, the best qualified mechanics, and not drawing the purse-strings too tightly.

Items of Interest for Those Contemplating the Furnishing of Their Homes.

As I have been a resident of this city for a great number of years, having grown up, as it were, with the place, and having the interests of San Francisco at heart, I consider myself well able to elucidate the points which I will endeavor to lay before the readers of this valuable periodical. And I hope that the advantages I claim to be derived, by heeding the advice which I deem important for all well-wishers of this community to follow, will be of more benefit than is anticipated by the writer. I have been brought up in a furniture manufacturing establishment, and under the tuition of one who has made this business a life-long study, and derived from him much valuable knowledge, and have had every opportunity to notice and be benefited by the progress of the furniture trade in this city for a period of almost twenty years. I have not only had this home experience as a mechanic and manufacturer, and admitted and permitted to view and inspect all the principal households of our most influential and wealthy citizens, as to the interior arrangements and decorations of their various households, but have visited the principal workshops of the Eastern States and Europe for information and learning in this particular branch, and can, from past experience and a thorough knowledge of my calling, with truth and safety declare that we are on a level with the best of them, not only as regards superior workmanship, but also excellence of design and finish. It is difficult to account for the reasons, if there be any substantial ones, why Eastern and European institutions should be patronized in preference to our home industries; when by so doing, the parties are not only paying more, and receiving less for their money, but are, in most instances, getting inferior work, and are indirectly injuring themselves, as most of the wealthy residents have all their interests here, and by building up and encouraging manufactures, and keeping the money among our own people, they are advancing the prosperity of the whole community, their own included. That they are paying more for their importations, is proven by the fact, that in giving the order for their establishments, some Eastern manufacturer comes here with his sketches and de-

signs, travels first-class, stops at the "Palace" or "Baldwin," remains two or three weeks, and you can rest assured that he does not consider his time valueless, and when the job is completed for delivery, he again comes, and remains, sometimes even longer than before, and brings with him men to superintend the cabinet, upholstery, and drapery work, all of which must be added to the cost of the work. And of the profits we will not speak, as they oftentimes exceed the cost. In addition to this, when the work is derived from the East, it must be taken as it comes, whether it has turned out to conform to the ideas of the purchaser or not. Whereas when they order here, they have the opportunity and the privilege to call at any and all times, while the work is in progress, and suggest ideas and order changes, and have everything to their satisfaction; and at the same time can satisfy themselves that everything they are getting is made exclusively for them, and not, as is often the case from the East, work is palmed off on California purchasers which has been in their warerooms for many years; and at other times, patterns which have been made time and again are brought here as the very latest. Upholstery materials can be brought to San Francisco as well as to New York, the finest as well as the cheapest, as all the finer goods invariably come from European markets, and there is nothing to hinder the newest patterns to be had here if they are desired and called for. Some say the manufacturers here have not seasoned materials, nor have they the assortment which is found in the East; but I venture to say, that there are manufacturers in this city who have as thoroughly seasoned lumber as can be found anywhere, and have every facility to thoroughly dry and prepare the same. And were these institutions to receive the support which they have a right to expect, they would in a short time excel the first in the country.

Carvers, cabinet-makers, and upholsterers are to be found in this city who have no superiors, as my experience has shown that the best workmen of almost all branches are of a roving disposition, and California has always been chosen by them as an ultimate destination. Designers are also to be found in abundance, and if there is a field for more, there is no difficulty in enticing the best, no matter where he may be, to come here. And why should not we have among us some natural talent which lies latent for want of an opportunity for development? Is it necessary that a man should be born in Vienna, Paris, or London to have genius? I think not. And all we desire is encouragement, appreciation, and recognition of our abilities. I can enumerate a vast number of instances where the work has been given East to the extent of millions of dollars, which should have remained amongst us, and probably given much less cause for complaint, on account of scarcity of work for our artisans. With some, there is a great deal in a name, no matter how poorly done. Some people have a great deal of satisfaction in being able to say that their home has been furnished in Paris or New York, or that this article was made in Vienna or Florence; is it not beautiful? they say. Which to those who are inexperienced, is taken as a fact, merely because it comes from some foreign place, and must therefore of necessity be elegant. And here let me say that I have seen some of the worst work that I have ever beheld come from Paris or Florencce, which was not worth the freight, and in some instances not even the packing.

In conclusion, allow me to suggest to all those contemplating the furnishing of their homes, to call on those of known repute in this city, and judge for for yourselves whether I am not right in asserting that San Franciscans need not leave their homes to furnish their firesides, as there are establishments here that are competent to execute the wishes of the most fastidious. JACOB LUCHSINGER.

THE CHINAMAN who is to teach Chinese at Harvard College for three years is to receive $200 a month. Professors to teach the English language can be obtained as low as $1000 a year. It would therefore appear that the Chinese language is worth more to the youth of America than their own. And perhaps it is, if a young man wants to embark in the business of decorating tea boxes, or manufacturing Chinese fire crackers in this country.—*Norristown Herald.*

Useful in Cases of Diphtheria.

The Boston Board of Health has issued the following circular for the purpose of more widely extending the knowledge of a few well-attested facts concerning diphtheria, and reminding all persons that greater care should be exercised to prevent the spread of this much dreaded disease:

Diphtheria is contagious and infectious, and may be easily communicated, either directly, or indirectly from person to person. It may be conveyed directly in the act of kissing, coughing, spitting, sneezing; or indirectly by infected articles used, as towels, napkins, handkerchiefs, etc. The poison clings with great tenacity to rooms, houses, articles of furniture and clothing, and may occasion the disease even after the lapse of months. Diphtheria attacks all classes, at all ages, and at all seasons of the year. By preference it attacks children and those who are debilitated from exposure to filth, dampness or foul air from whatever source.

When a case of diphtheria occurs in any family, the sick person should be placed in a room apart from the other inmates of the house, and should be nursed, as far as possible, by one person only. The sick chamber should be well warmed, exposed to sunlight, and well aired; its furniture should be such as will permit of cleasing without injury, and all extra articles, such as window and table drapery, woolen carpets, upholstered furniture and all hangings, should be removed from the room during sickness. The physician and nurse, as a rule, should be the only persons admitting to the room. Visitors to the infected house should be warned of the presence of a dangerous disease therein, and children especially should not be admitted. All clothing removed from the patient or the bed should be at once placed in boiling water or in a tub of disinfecting fluid (eight ounces sulphate zinc, one ounce carbolic acid and three gallons of water) by the nurse before being carried through the house or handled by any other person. They may be soaked in this fluid for an hour, and then placed in boiling water for boiling.

It is better not to use handkerchiefs for cleaning the nostrils and mouth of the patient, but rather soft rags which should be immediately thereafter burned. All vessels for receiving the discharges of the patient should constantly contain some of the disinfecting fluid. Water-closets and privies in the house should be disinfected daily with a solution of copperas—two pounds to a gallon of water. Every kind and source of filth in and around the house should be thoroughly removed, and disinfectants freely used. Cleanliness tends to prevent and mitigate the disease. Drains should be put in perfect order and ventilated by a four-inch straight pipe extended above the highest point of the house in every instance, terminating at a distance from any chimney or other ventilator. Children in the family should not attend school, or mingle with other children until the patient has wholly recovered, and all infected articles have been disinfected.

On the recovery or death of the patient, the most thorough disinfection should follow. The room and all articles in it should be at once subjected to the fumes of burning sulphur as follows: Close the room tightly, and burn two and a half pounds of sulphur to each thousand cubic feet of space. After four or six hours, open the room and expose it to air and sunlight for a week. Anything that can be boiled without injury may be so treated. The walls and ceilings should be dry rubbed, or lime washed with soap and water, to which may be added a little carbolic acid. When death occurs, the body should be immediately placed in the coffin, with disinfectants, and the coffin tightly and finally closed. No public funeral should ever take place at the house where the patient died, nor elsewhere, unless the coffin remains hermetically sealed.—*The Mechanic.*

ILLUSTRATIONS BY PICTURES.—One of the great contrasts between the school-books used by the fathers and mothers of the land, when young, and those used now by the children, is the use of pictures. As a curious instance of illustrating the meaning of words by pictorial illustration, the pictures in the new edition of Webster's Unabridged Dictionary in connection with the following twelve words, beef, boiler, castle, column, eye, horse, moldings, phrenology, ravelin, ships, steam-engine, timbers, illustrate and define the meaning of more than 340 words and terms, as may be seen by examining the Dictionary.

A Strange Story.

Not long ago a well-known collector of curiosities in Paris, who had devoted considerable sums of money to the gathering together of bank notes of all countries and of all values, became the possessor of a Bank of England £5 note to which an unusally strange story was attached. This note was paid into a Liverpool merchant's office in the ordinary way of business sixty-one years ago, and its recipient, the cashier of the firm, while holding it up to the light to test its genuineness, noticed some faint red marks upon it, which upon closer examination proved to be semi-effaced words, scrawled in blood between the printed lines and upon the blank margin of the note. Extraordinary pains were taken to decipher these partly obliterated characters, and eventually the following sentence was made out: "If this note should fall into the hands of John Dean, of Long Hill, near Carlisle, he will know hereby that his brother is languishing a prisoner in Algiers." Mr. Dean was promptly communicated with by the holder of the note, and he appealed to the government of the day for assistance in his endeavors to obtain his brother's release from captivity. The prisoner, who, as it subsequently appeared, had traced the above sentence upon the note with a splinter of wood dipped in his own blood, had been a slave to the Dey of Algiers for eleven years, when his strange missive first attracted attention in a Liverpool counting-house. His family and friends had long believed him dead. Eventually his brother, with the aid of the British authorities in the Mediterranean, succeeded in ransoming him from the Dey, and brought him home to England, where, however, he did not long survive his release, his constitution having been irreparably injured by exposure, privations and forced labor in the Dey's galleys.—*London Telegraph.*

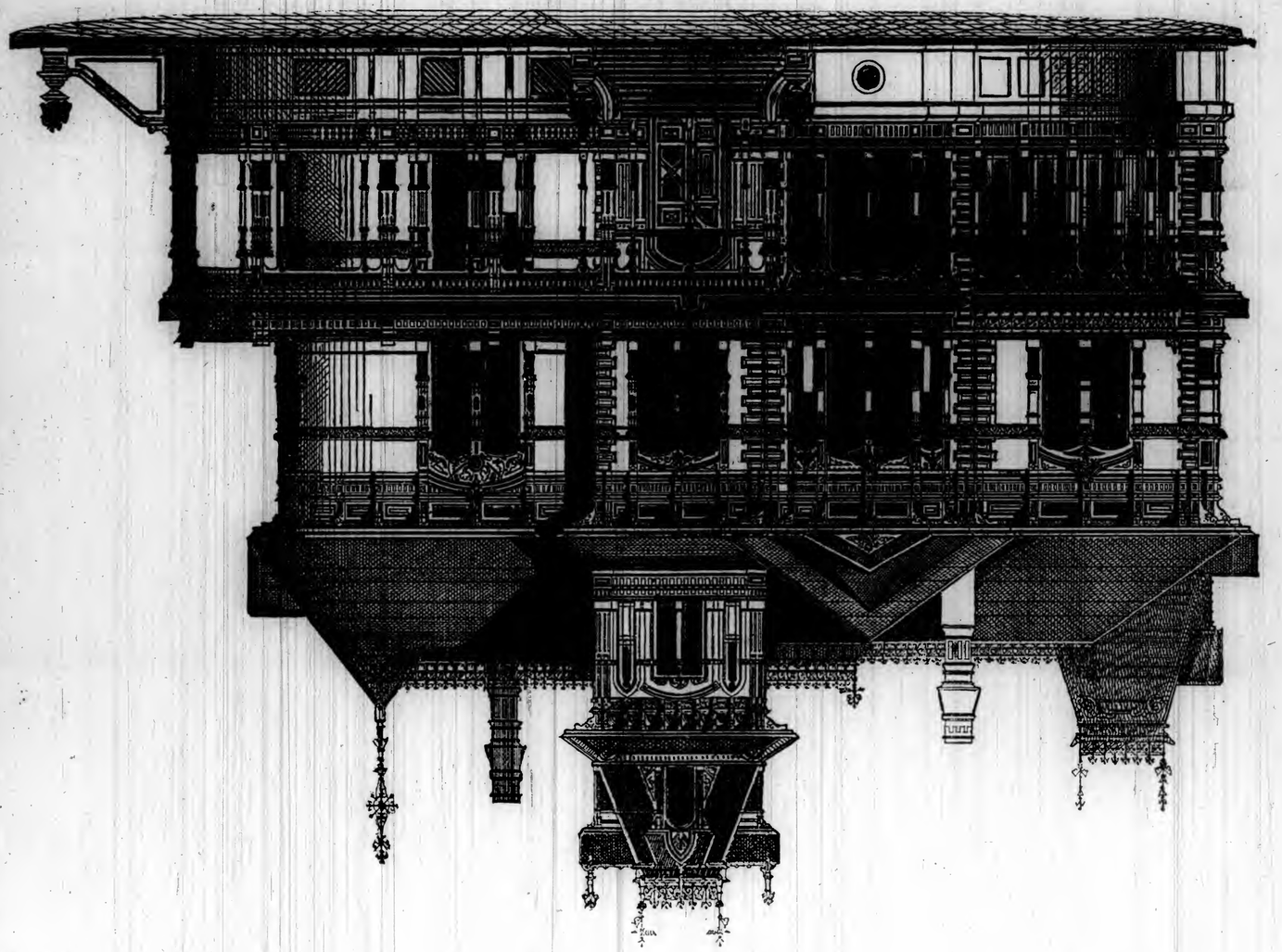
Artificial Stone.

One of the most successful processes for making artificial stone, is that carried out on a large scale by the Union Stone Company, of Boston, United States. It is based upon the discovery of M. Sorel, the well-known French chemist, that oxychloride of magnesium is a hydraulic cement possessing great hardness and strength. Carbonate of magnesia or magnesite is found in large quantities in Pennsylvania, Maryland, California, and Greece. When quarried it is a grayish white material, of a specific gravity of 2.096, and contains about 95 per cent. of carbonate of magnesia, the remaining 5 per cent. being chiefly insoluble silicious matter. The mineral is also found in Canada, but with a lower percentage of magnesia, and a mixture of iron oxide. To bring the magnesite into condition for the process it is placed in kilns, and burned at a low heat for about twenty-four hours; if it be exposed to intense heat it practically loses its power as a hydraulic cement. When removed from the kiln the mineral is changed to oxide of magnesium, and is of a brilliant white color, showing a very beautiful fracture. It is ground to an almost impalpable powder, and mixed in a dry state with the proper proportion of powdered marble, slate, bone-dust, or any other material which it is intended to imitate in the finished production. Only about ten per cent. of magnesia is mixed with the base, so that the color of the artificial stone is little if at all affected by the cement employed. To the mixture is then added a solution of chloride of magnesium of a density varying from 15 degrees to 30 degrees Baume, sufficient to bring the whole mass into a plastic state. For small objects it is then intimately mixed by hand, and for large ones in a machine, until the cement of chloride and oxide of magnesium has penetrated thoroughly between each particle of powdered marble or stone forming the base. As soon as this is effected the mixture is placed in suitable molds and closely rammed; it may be removed immediately this has been done, and left to harden without any subsequent treatment. It bears handling within a few hours of its leaving the mold, and at the end of a week it can be used for construction or other purposes. General Gilmore, in his excellent work on cements, states that this combination greatly surpasses in strength all other artificial stone, while in appearance it can be scarcely known from the material it is intended to represent. Experiments at the Boston Navy Yard gave the following results as to the power of the stone to resist crushing;

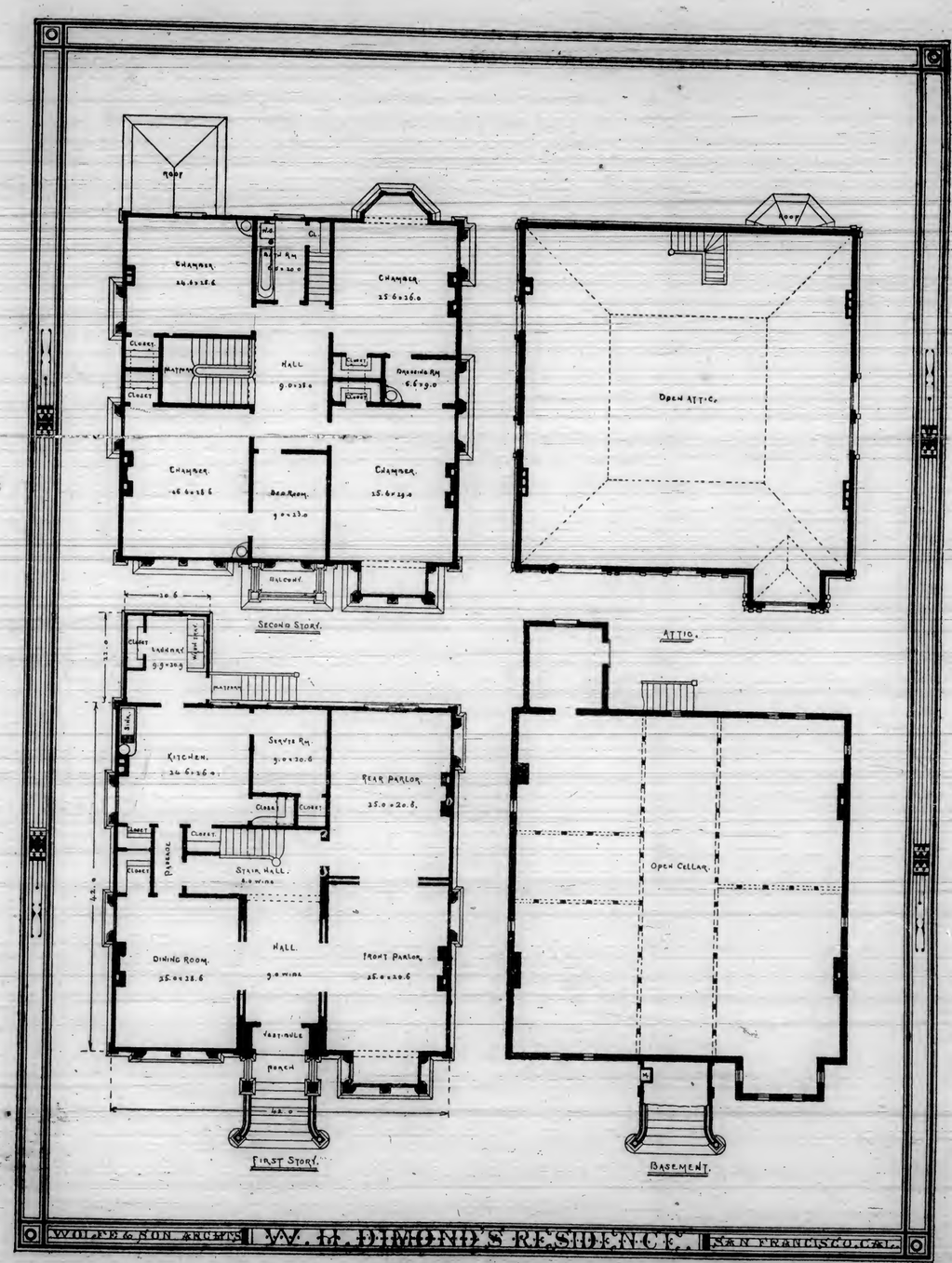
ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

ROYAL INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIV

FRONT ELEVATION.



FRONT ELEVATION.



FLOOR PLANS.

ROYAL INSTITUTE OF ARCHITECTS
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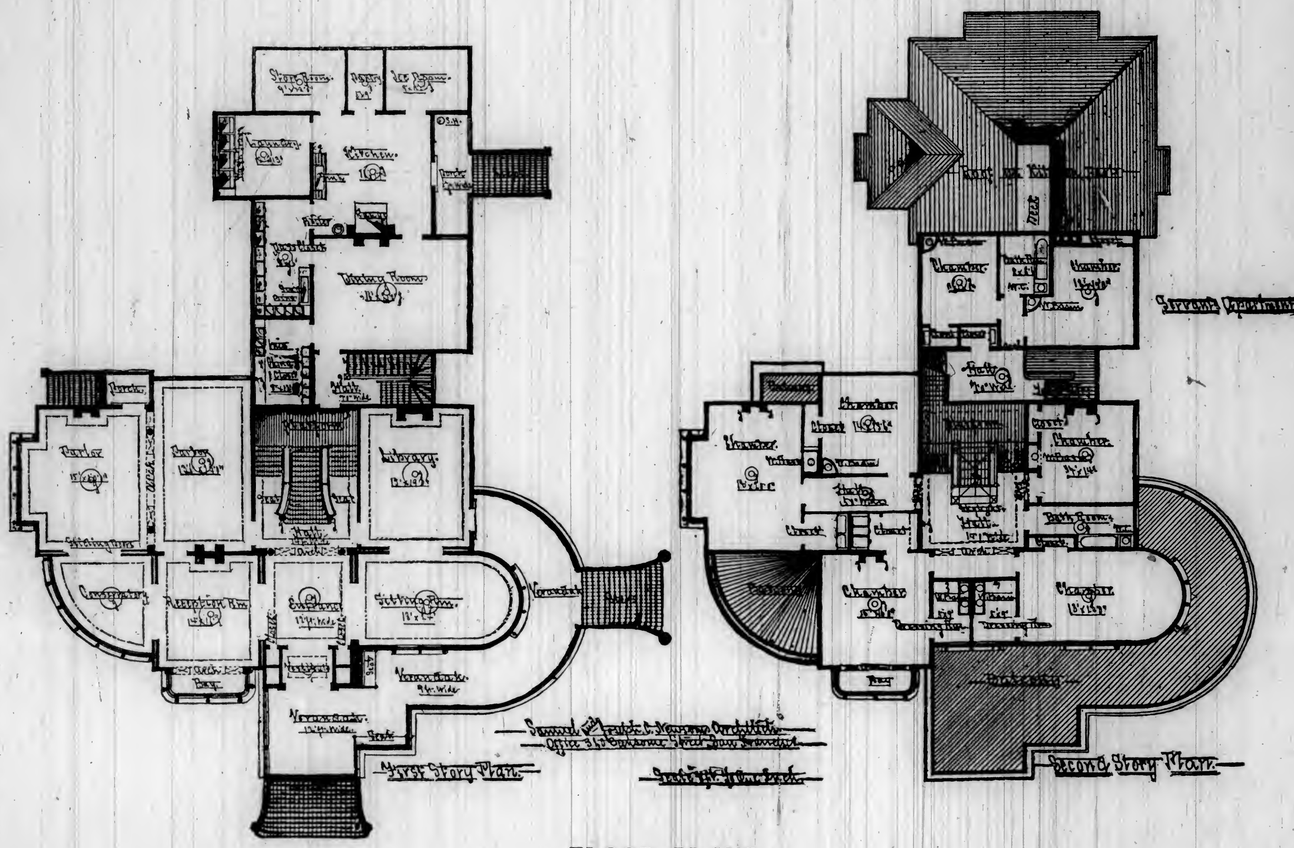

FLOOR PLANS.

	Pounds per square inch
Specimen No. 1, resistance to crushing	7,187.5
" No. 2, " "	11,562.5
" No. 3, " "	21,562.5
" No. 4, " "	7,343.5

It will be noticed that the higher results are much larger than those given by granite, and that the average of the four specimens is from two to three times that of limestone, sandstone, and some classes of granite, while it is one and a half times as much as that of hard Pensylvania marble.

While, however, this process is so largely used and so thoroughly adapted for producing artificial stone, it is principally employed both in the United States and in France for the manufacture of emery wheels, which in both countries have earned a very high reputation. The process of manufacture is precisely similar to that already described, except that emery is used as the base instead of pulverized stone. Of course different grades of emery are employed to produce different qualities of wheels, and for the finer kinds corundum and other powders may be employed. The mixture is all worked up by hand, as in making these wheels a perfect amalgamation is absolutely necessary, and it is found that machinery does not effect this so thoroughly as manual labor. Immediately after mixing, the material is rammed into a mould, whence it is removed to harden. Four weeks are required to elapse before the stone is put in use. The extreme hardness of the material, its homogeneity, and its comparatively high tensile strength, render it peculiarly adapted for emery wheels. Moreover, as it is devoid of any vegetable base for holding the emery together, it never becomes "gummed" on the edge, but retains its cutting properties unaltered during the severest wear. Another good feature of this process is that no treatment is required after the material leaves the mold, and the whole mass hardens gradually and equally, so that it is impossible that any internal strain can be set up in the wheel, a consequence almost inseparable from any baking process. It is claimed for these wheels that they can be run at very low speeds, owing to the large area of cutting surfaces they present on their periphery. We are glad to see that the manufacture of wheels on Sorel's process has now been commenced in this country by Messrs. Hodges & Butler, of the Thames Silicated Stone Works, East Greenwich, and we have little doubt that they will earn here the same reputation they possess in the United States and in France.—*Builder and Wood Worker.*

The Javanese as Mechanics.

The Island of Java, in the East Indian archipelago, is under the government of Holland. At Surabaya the government has a large machine shop where many castings are made, but where the chief business is the manufacture of steam-boilers for the navy. A traveler describes this establishment, in which nine hundred Javanese were laboring voluntarily. The Javanese are of the Malay race, and most of the overseers are natives, but few Europeans being employed in the whole works. These Malays perform their allotted tasks quietly and steadily, without loud talking or unnecessary noise. Some of them are so skillful that they receive nearly two guilders, or seventy-five cents, per day. Here the standard weights and measures for the government are made. Some of the workmen had been in the shops as long as fifty-seven years. This is all the more remarkable, because these natives are usually unable to labor at the age of thirty-five or forty, on account of their dissolute habits. Most of their machinery is not as nicely finished as that imported from Europe, but it appears quite as durable. Yet the fact that the Javanese have the capacity to do some nice work was proved by one in charge of the engraving department, whose fine lines would have been creditable to many a European.—*Builder and Wood-Worker.*

PARTNERSHIP.—If the name of a partnership firm be merely the name of an individual partner, proof that he signed such name to a bill of exchange is not enough to make the firm liable on the bill. To establish the liability, the holder of the bill must further prove that the signature was put to it by the authorty and for the purposes of the firm.—Yorkshire Banking Co. *v.* Beaston, Court of the Queen's Bench.

Stains for Wood.

To turn oak black, so as to cause it to resemble ebony, the wood should be immersed for forty-eight hours in a hot saturated solution of alum, and then brushed over with a logwood decoction, prepared as follows: Boil one part of best logwood with ten parts of water, filter through linen, and evaporate at a gentle heat until the volume is reduced one-half. To every quart of this add from ten to fifteen drops of a saturated solution of indigo, completely neutral. After applying this dye to the wood, rub the latter with a saturated and filtered solution of verdigris in hot concentrated acetic acid, and repeat the operation until a black of the desired intensity is obtained. To imitate rosewood, a concentrated solution of hypermanganate of potassa is spread on the surface of the wood, and allowed to act until the desired shade is obtained. Five minutes suffice ordinarily to give a deep color. A few trials will indicate the proper proportions. The hypermanganate of potassa is decomposed by the vegetable fibres with the precipitation of brown peroxide of manganese, which the influence of the potassa, at the same time set free, fixes in a durable manner on the fibres. When the action is terminated, the wood is carefully washed with water, dried, and then oiled and polished in the usual manner. The effect produced by this process on several woods is remarkable. On the cherry, especially, it gives a beautiful red color.

Architectural Design.

The principal faults in architectural design in the present day appear to lie in the direction of unrestrained or undisciplined ambition, or in false taste, which leads the young architect to tell all he knows, and sometimes more, at a single effort, as if he never expected another opportunity; or, on the other hand, an endeavor to produce something so different from others and so startling in effect, in the expectation to distinguish himself in his profession by one stroke over others whose knowledge of its rules has been a life-time study.

Repose by these young men is condemned, and in place of it we find a fidgety, over-conscious display of knowledge in their first buildings, in which too often all rules of architectural proportion, taste and design are violated; façades loaded with inappropriate and meretricious ornamentation, and appearing, when viewed with a calm critical eye, like an overdressed, vulgar woman.

Although the conditions under which the profession is practiced to-day are wholly different from those which prevailed some years ago, the mental equipment with which the young architect now starts forth on his career is very different from the lesser opportunities which architects not a quarter of a century ago possessed.

The extraordinary multiplication of books and photographs, and the admirable course of instruction offered in our colleges, joined by a singular revival of enthusiasm for the art, has given him immense advantages, and he has only himself to blame if he has not the examples of all styles of ages at his finger ends, as well as in his portfolios and scrap-books. In fact his danger arises not from want of technical knowledge, but from intemperance and disorder in the use of it.

The great danger that the young architect is likely to fall into is a feeling of independence of fixed principles, an inclination to start off the road traveled in safety by others, and strike out something piquant and unique for himself. From the want of fixed principles his mind wavers and his ideas are visionary. This year it is the English Gothic, the next in the reign of Queen Anne, the year after the French Renaissance, or perhaps a mixture of every style, by way of being eccentric; and an audacious defiance of the plain rules of common sense or the requirements of common convenience rather than a real achievement of art.

We trust that the day is not far distant when a restraint will be put upon this wild license of practice, and that good judgment and taste will take the place of the medley of styles and meretricious ornamentation which offend the eye in so many of the buildings which form the street architecture of some cities in Canada. With the encouragement given to Art Education, under the patronage of His Excellency the Gov.-General and H. R. H. the Princess Louise, false taste in design will receive a check.—*Scientific Canadian.*

Causes of Ill-Health among Women.

Miss Anita E. Tyng, M. D., of Providence, contributes an admirable paper on "the Causes of Ill-Health among Women" to the annual report of the Rhode Island State Board of Health, which deserves republication as a sanitary tract. She places ignorance as among the chief of these evil causes, and suggests that one remedy lies in the dissemination of proper knowledge by sanitary authorities. Instruction is needed in the duties of motherhood and in scientific cooking, especially the preparing of proper nourishment for the sick. She thinks there is room for the better organization of household labor, and that if we had women architects much improvement might follow in the arrangement of houses. If the masses were properly taught to abandon their "half-starving diet" of bread and tea, and excessive use of patent tonic medicines, much good would result. She quotes authorities to prove that as a rule people are under-fed, and that the use of stimulants and the consequent physical and moral degradation, can and should be prevented. It is easy, she remarks, to be a good Christian if one has a sound spine and a sound stomach; so it is easy, if one has a sound stomach well supplied, to resist the temptations of liquor and to refrain from crime. It is said that insanity is on the increase, especially among the ignorant classes, and that only ten per cent. are cured, yet Dr. Tyng cites numerous authorities to show that mental disease may be greatly diminished by a more rigid observance of the laws of health and nature. The delicate subjects of abortion and the social evil are discussed by Dr. Tyng in a practical manner, and her suggestions are pertinent. Popular enlightenment, she thinks, will lessen both of these evils. A change of tone in public opinion is needed. Delicacy must not be confounded with refinement, nor thinness and paleness admired for beauty. Sickness should be considered as allied with sin. Finally, women must be taught to help themselves in these matters. We trust these wise suggestions will find many readers.—*The Plumber and Sanitary Engineer.*

The Importance of Personal Habits

As affecting health can hardly be over-estimated. Hundreds of cases can be cited of noted persons of the most feeble constitution who, by care, were able to prolong their lives and accomplish wonderful labors in spite of almost continuous illness. The Jews are said to be the longest-lived people, because of their strict attention to hygiene as directed in the Mosaic law. If a man, by taking thought, cannot add a cubit to his stature, he may at least lengthen his days very materially by prudence. Any one can prolong his or her life beyond the average term of years by simple attention to hygienic laws. In our own generation we have remarkable examples of mental activity continued to a great age in the case of Gladstone, Bismarck, Thiers, Emerson, Bryant, Vanderbilt, Charles O'Conor, Peter Cooper, Bancroft, and Dr. Willard Parker, not to mention others. Many of these men were of frail constitution originally, yet they have performed herculean tasks, and their example should be encouragement to all—"What man has done man can do."—*The Plumber and Sanitary Engineer.*

A New York physician relates that one of his patients, a child, had the typhoid fever, and, wanting a drink of milk, he, with an invalid's petulance, insisted that his mother should bring it to him herself. The latter complied, and on opening the refrigerator was astonished at the noisome odor which came from that receptacle. On inquiry of the servants she found that such smells were common. Examination showed that the refrigerator drained into the soil-pipe, and that sewer-gas found its way freely into the part where the food and milk were kept. This is a common arrangement in many city houses, and should never be allowed.

PROMISSORY NOTE.—In the absence of fraud the maker of an accommodation note cannot set up want of consideration as a defense against a holder, with notice to whom it has been pledged as collateral security for antecedent debt by the payee for whose accommodation it was made.—Twining *v.* Hunt, Philadelphia Ct. Com. Pleas.

Lead Pipps for Water Service.

Regarding the safety of lead pipes for water service, there is a wide divergence of opinion. The Franklin Institute officially declared in 1871 that "there exists no authenticated accounts of the health of the numerous towns and cities supplied by leaden distributing pipes having been injuriously affected." Yet in the same year the Massachusetts Board of Health investigated 41 cases of lead poisoning in 170 towns of that State. An English Scientific Commission reported that the purest water available for the supply of London came from a lake which received the washing of a lead mine. Samples of lead pipe 200 years old were submitted to the French Academy, which showed so little trace of corrosion that the impression of the sand of the mold in which the pipe was cast was distinctly visible. Nevertheless, from the time of Galen, physicians and chemists have regarded lead as an unsafe material for water conveyance, and have discountenanced its use.

The amount of danger of poisoning from drinking water conveyed through lead pipes depends greatly on circumstances. Many kinds of water are not contaminated at all by lead; other kinds may be affected by contact for a length of time, but not otherwise. At the worst, severe cases of lead poisoning are rare, and they may be avoided by filtration of the water before it is used. The influence of heat has the effect of increasing the corrosive action of water, while water which contains any organic poison, as sewer contamination, is much more liable to be affected by the lead than would otherwise be the case.

In general, unless their action is interfered with by the presence of other substances in other proportions, the carbonates, sulphates, phosphates and borates exercise a protective influence over lead. On the contrary, the sulphurets or sulphides, nitrates and nitrites, chlorides, organic matter and alkalies impart to water a corrosive power over lead.

As well water contains considerable nitrates and chlorides, it is more liable to contamination than spring, pond or river water. Carbonate of lime is the most effective protector of lead that exists in water, and fortunately most waters contain it.

Water which is strongly impregnated with gypsum, potash, or with soda, soon covers the pipes which convey it with an insoluble coating which effectually protects the metal from injury.

One of the simplest modes of testing if the water in a given locality is likely to be readily contaminated by lead is, that a piece of *clean* lead be exposed in a vessel to the influence of a sample of the water, and if after an interval of twenty-four hours the bright surface of the lead is at all tarnished it may be pronounced unsuited for conveyance through lead service pipes.

Where water has been standing for several hours in lead pipes it is desirable that none should be used for drinking purposes until it has been allowed to run for a few minutes, while under no circumstances should the copper water from the boiler be used for cooking purposes, as serious results have followed from this practice.

Again, in laying lead pipes or in having repairs made, care should be taken not to allow pieces of mortar or lime to get into them, or that the pipes should be in too close contact to fresh, moist mortar or cement. Lead tanks and cisterns have often been corroded by the lime in pieces of mortar which have fallen into them through carelessness.—*Plumber and Sanitary Engineer.*

The Durability of Timber.

As showing the durability of timber, the fact is cited that the piles of a bridge built by Trajan were found, after having been driven some sixteen hundred years, to be petrified four inches, the rest of the wood being in its ordinary condition. The elm piles under the piers of London Bridge have been in use more than seven hundred years, and are not yet materially decayed, and, beneath the foundation of Savoy Place, London, oak, elm, beech, and chestnut piles and planks were found in a perfect state of preservation, after having been there for six hundred and fifty years. Again, while taking down the old walls of Tunbridge Castle, Kent, England, there was found in the middle of a thick stone wall a timber curb which had been inclosed for seven hundred years; and some timber of an old bridge was discovered while digging for the foundations of a house at Windsor which must have been placed there prior to the year 1396.—*New York Sun.*

The Following Compilation,

from the *Commercial Herald and Market Review*, refers to the business of California and the Pacific Coast:

California product of wheat in 1879, 22,400,000 centals.

Wheat and flour exports in 1879, 12,074,997 centals.

Wheat and flour exports for twenty-three years, 112,000,000 centals.

Barley crop of California in 1879, 6,000,000 centals.

Gold and silver yield in 1879, $75,500,000.

Gold product of the Pacific Coast since 1848, $1,622,040,000.

Silver product of the States and Territories west of the Missouri River since 1858, $446,625,000.

Combined gold and silver product of the Pacific slope since 1848, $2,068,665,000.

Gold and silver exports in twenty-three years $917,029,600.

Coinage in San Francisco Mint in 1879, $38,065,750.

Coinage in San Francisco Mint from 1854 to Dec. 31st, 1879, $590,126,750.

Combined exports of merchandise and treasure (exclusive of merchandise by railroad) in 1879. $62,782,500.

Mining stock sales, 1879, (San Francisco Board) $70,119,665.

Aggregate mining stock sales in the regular session of the San Francisco Board since its organization in 1863, $1,934,700,000.

Lumber imports at this port in 1879, 225,000,000 feet.

Domestic coals received in twenty years, 3,944,855 tons.

Wool clip in 1879, 46,900,000 ponuds.

Product of wine in 1879, 5,500,000 gallons.

Tonnage movement of Central Pacific Railroad in 1879, 3,030,317,000 pounds.

Quicksilver product in California in 1879, 73,500 flasks.

Value of manufactures in San Francisco in 1879, $40,000,000.

Banking capital of the State, $175,000,000.

Mercantile Law.

RECORD OF DEEDS.—A deed is, in contemplation of law, recorded when it is left for record at the recorder's office, and is valid notice from that time though it be recorded in the wrong book and omitted from all the deed and mortgage indices.—Croll *v.* Thomas, Sup. Court, Pa.

PROMISSORY NOTES.—Consideration need not be alleged. The omission of the words, "for value received," in a promissory note, is not material.

In an action upon such a note, it is not necessary to allege in the complaint that there was any consideration therefor.

A description of the note is sufficient without an averment of the consideration.—Underhill *v.* Phillips, 17 N. Y. Sup. Ct. Reps. 591.

VERBAL PROMISE.—A verbal promise to pay the debt of another is within the Statute of Frauds, and is void if made to creditor, but not if made to the debtor.—Pratt *v.* Bates, Sup. Ct. Mich.

FRAUDULENT REPRESENTATIONS—COMPROMISE INDUCED THEREBY.—Where a creditor is induced to compromise a debt upon the receipt of fifty cents on the dollar, by means of the false and fraudulent representations made to him by the debtor, that another of his creditors has agreed to accept such compromise, the creditor may, upon discovering the falsity of such representations, maintain an action against the debtor to recover the damages sustained by reason thereof.

A YOUNG lady recently entered a railroad carriage in Paris, where there were three or four gentlemen, one of whom was just lighting a cigar. Observing her with the characteristic "politeness" of a Frenchman, he asked her if smoking would incommode her. She replied: "I do not know, sir; no gentleman has ever smoked in my presence."

IMPORTANT TO PUBLIC LAND PURCHASERS.—The Secretary of the Interior has rendered a decision of importance to all purchasers of public lands by "private entry," holding that whenever, prior to patenting, it is discovered that the land previously offered and entered as agricultural is really mineral in its character, the entry must be canceled, and the land reserved for entry under laws specially applicable to mining lands. The issue was presented by the case of Smith Scroggins *v.* Charles E. Culver et al., involving title to a tract of 2,000 acres of land in Camden (Arkansas) district, which was purchased from the Government at private entry in 1878, subsequently found to contain argentiferous lead ores.

EMPLOYMENT FOR RICH YOUNG MEN.—The New York *Times* says: One of our difficulties of the future, if not of the present, is the rich young man; what shall we do with him? Here is an admirable theme for Charles Francis Adams, Jr. England is about the only land where the rich young man is turned to some useful account. There he travels, or goes into the Guards, then into Parliament, attends Quarter Sessions, and raises big gooseberries, monster turnips and prize cattle. Here, on the other hand, he plays poker, polo, whist and billiards, belongs to the Union and Knickerbocker, goes abroad, passes the winter at Nice or Monaco, gambles, drinks, keeps fast horses, and sometimes other fast cattle, and "does no good," as his elderly spinster relatives have it. If, on the other haud, he goes into business, the chances are he loses every cent he has. Perhaps the very best thing he could do would be to go into politics. There is a great and growing respect in this country for any man who goes into politics with honest intent, and not "on the make," and once in politics a man soon grows interested.

Fined for Profaneness.

"A Mercer, Pa., justice fined a man sixty-five cents an oath for fifteen profane oaths on the public street. We would there were more such men in office."

We heartily say amen to the wish there were more such justices. What a revenue there would be if all the oaths were fined sixty-five cents each. What piles of money would be heaped up in all our towns, cities, and villages. If it should be applied to wiping out the national debt, how soon that desirable object would be accomplished. Say there are 40,000,000 people in the United States; say one in ten uses profane language, with an average of thirty oaths daily; that would amount to 120,000,000, which, at sixty-five cents each, would make $78,000,000; so that assuming the national debt in round numbers at $2,000,000,000, it would take a fraction less than twenty-six days to pay it. This is doubtless a very low calculation, for when we remember how rife profaneness is, and how many there are who can scarcely speak without an oath, we should not be at all staggered at the idea that one single day's fining, at the above rates, would bring in enough to cancel the whole debt, and perhaps leave a surplus.

The Great Water Question.

We had prepared for this issue, an article on the all-absorbing question of the day—the water-supply of San Francisco; but defer its publication to give place to the following article from *The Plumber and Sanitary Engineer*, which contains statements well substantiated, deserving most serious consideration. In a future issue, we shall give our own views and experiences, in reference to open wells, and the Spring Valley water supply. It says:

WATER POLLUTION AND ITS DANGERS.

The effect of water pollution on the public health is of vast importance to the community, and it is daily attracting attention. Every little while it is discovered that the water-supply in some place, previously supposed to be perfectly pure and wholesome, is contaminated by sewage and other filth. Naturally, the people who make these discoveries are amazed and alarmed, yet few persons have any conception of the extent to which pollution of water exists.

Prof. Tyndall says: "As surely as a thistle was from a thistle-seed, as surely as a fig comes from a fig, the grape from the grape, the thorn from the thorn, so surely does the typhoid-fever virus increase and multiply into typhoid fever, the scarlatina virus into scarlet fever, the small-pox virus into small-pox."

No less surely, it may be added, are certain forms of disease propagated by drinking water polluted by infected human excrement.

The London *Times* not long since reported a striking case of a letter-carrier, whose family were nearly all destroyed by diphtheria, due to drinking water polluted by bad drainage. A child was taken ill with vomiting at five o'clock in the afternoon, and died early the next morning. On the same day five other children and the mother were attacked with diphtheria of the most malignant type, the result being that in a few hours three more deaths occurred. The mother and one child barely recovered. The drains were very offensive, and one of them was stopped up, while another was close to the cistern. The water used for drinking purposes was very bad, and smelt strongly. The cistern was not properly covered in, and was lined with cement which was coated with green filth to the extent of from ¼ inch to ½ inch in thickness. It had not been cleansed for a long period. The malignant character of the disease was shown by the fact that it proved fatal within a few hours of seizure. In one case the child was running about playing at three o'clock in the afternoon, and in the evening was dead.

This was a very exceptional case in respect to the rapidity and severe consequences which followed, but a vast amount of less fatal disease may be traced directly to like causes.

Most of the examples usually cited of the sad results of water pollution have been from English authorities. This is because we have not yet had any great epidemic outbreak which could be directly traced to such sources, though the number of single cases would in the aggregate exceed those of any epidemic. We will first cite some of the English historical instances of epidemics of "filth diseases," as Mr. Simon has well defined them, and will afterwards mention American examples.

In the now historic case of Over Darwen, England, the infiltration of the *excreta* from a typhoid-fever patient into the main conveying the water-supply of the bulk of the inhabitants of that town, caused more than *two thousand* people to be attacked by that disease, and more than a *hundred deaths*. In the more recent epidemic at Caterham and Redhill, the pollution by one individual of the water-supply occasioned 342 cases of typhoid fever and 21 deaths. As Prof. Tyndall has observed, in the district of Novgorod, in Russia, between the years 1867 and 1870, 828 human beings and 56,000 horses, cattle, and sheep perished by the drinking of water containing the spores of the *bacillus anthracis*.

In the admirable reports on the Public Health in England, by Mr. Simon, hundreds of instances of outbreaks of enteric fever being caused by water pollution, will be found. Of enteric fever alone, no less than 6,879 deaths occurred during 1877 in England and Wales, which were, as Mr. Ernest Hart says, intimately connected with filth, and thus wholly preventable. During four years Mr. Simon has investigated no less than one hundred and sixty-four epidemics of typhoid fever, and in all of these cases excremental pollution of air or water—generally both—was found.

Within a short time the town of Greece, in this State, has been visited by an acute type of dysentery, which has caused many deaths. In fact, this disease has yearly been in the locality ever since a quarter of a century ago, when it and the adjoining city of Rochester were desolated by cholera. The vicinity of a hill called Mount Reed, is the center of the epidemics. There is a grave-yard on its top; the soil is gravelly, and as only the residents upon the hill-side are attacked, while the rest of the town is healthy, the inference of the local physicians seems correct that the epidemic is due to well-water poisoned by the cemetery drainage.

Pittsburgh is another city where the drinking-water is often absolutely filthy. The water forced up at the pumping station is full of filth washed out of the sewers during rain-storms; at times the smell makes the men sick who work at the pumping house.

The *Chronicle*, of a late date, reports that one physician has ten cases of various types of disease which he attributes to the use of impure water. How high the figures would reach were all the members of the medical profession to report, can only be conjectured.

In Philadelphia several pumps have been closed by the authorities, owing to their impurities.

In a paper on Sources of Drinking Water, contributed to the last report of the New Jersey State Board of Health, Prof. H. B. Cornwall, of Princeton, cites a number of cases of the ill effects of drinking impure water in that vicinity.

In Denver, Col., recent analysis has shown great impurity in the water, and there are hundreds of putrefying cess-pools in close proximity to wells. During the late agitation with reference to the Holly water it was common to hear persons remark that they "*only* drank well-water."

The city of Wheeling, W. Va., is believed to be very healthful by its citizens. The same belief is shared by the citizens of most other cities where epidemics are not actually present. Yet, as the drinking-water is taken from the Ohio River, which for a hundred miles above receives the drainage and refuse of ten thousand human habitations, it is easy to explain why Wheeling has an unusually high death rate.

A recent chemical test taken of the drinking water at Memphis showed that only *two* of seven samples of cistern-water examined could be pronounced of good quality.

As regards Baltimore, Prof. Ira Remsen, of the Johns-Hopkins University, emphatically declares:—"The pump-water of Baltimore is dangerous; every pump in the city should be destroyed; no considerations of expense should stand in the way." There are some *six hundred* of these wells still in use. Prof. Tonry reports that out of seventy-one samples of their contents analyzed, thirty-three were filthy, ten bad, and twenty-two suspicious—or sixty-five in all unsuited for use.

Prof. Piper, of Chicago, has tested the water at Milwaukee, and found many impurities therein.

In Augusta, Ga., Prof. Rains has shown by chemical tests that the well-water is contaminated. In Binghampton, N. Y., sickness has been charged to the same source of supply.

In Louisville, the late Dr. Jenkins discovered that water from wells contained a very large amount of deleterious solid matter calculated to engender typhoid fever and other filth diseases; and this view is sustained by Drs. Rodman and Marvin. In Washington several of the public wells have recently been found to contain poisonous water, and the authorities are talking about substituting hydrants for public use.

Prof. S. A. Lattimore, of Rochester, analyzed forty suspected wells in localities where typhoid fever prevailed. Not one single well out of this whole number failed to afford evidence that it had received the sewage of drains and privies. Of fifty cases of typhoid fever, all of the patients, with the exception of two, used well-water. Prof. Lattimore doubts very much if there is a well of pure water in the city of Rochester.

At Buffalo, Dr. A. R. Davidson, in a late address before the Medical Association of that city, remarked that "during the summer months the number of persons using well-water is largely increased. Many families who cannot afford the use of ice discard the safe, but now warm and unpalatable hydrant-water, for drinking purposes, and use the cool and delicious, but oftentimes poisonous well-water. That this is one of the causes of the increased sickness during the last months is unquestionable. I have examined nine wells, and found every one more or less contaminated, and some of them horribly so."

Brooklyn has a large number of public wells, and although she has comparatively few privy-vaults to pollute the soil, yet the water from these wells, as shown by analysis, is simply frightful.

Dr. James G. Hunt, Health Officer of Utica, in a late address before the Oneida County Medical Society, on "Water," stated that the water from wells in that vicinity is far from pure. He says: "I have personal knowledge of many cases in this city where the privy is not fifteen feet from the well constantly used for family purposes. I recal one instance where the distance separating the two is just ten feet. When the owner's attention was called to the fact, and he was requested to fill it up and dig a new well 100 feet distant from the old one, he complained bitterly against the Board for putting him to an unnecessary expense, 'claiming that his water was the purest and cleanest in the city. A chemical analysis subsequently revealed that it was so impure as to be positively unfit for use.

The outbreak of enteric fever in the State Reform School at Jamesburg, N. J., in 1878, by which twenty boys were suddenly stricken down, turned out to be a case of water-poisoning through the gradual choking up of porous soils with fecal deposits and the consequent infection of wells.

Our Illustration Plates.

The elevation and plans appearing in this issue to the credit of Messrs. S. & J. C. Newsom, illustrate the design of a residence intended to be erected on the eastern side of Lake Merrit during the present year. The plans in general carry their own explanation. The rooms are large and well arranged. The parlors respectively are 15x20, and 13 ft. 6 in. x24 ft. 10 in.; library, 15x19 ft.; sitting-room, 13x24 ft.; reception-room, 14x16 ft.; dining-room, 15x21 ft.; kitchen, 16x17 ft.; laundry, 12x13 ft.; store-room, 9x12 ft. 6 in.; ice-room, 9x11 ft. On the southern and eastern side of the building will be elegant verandahs, as shown, 9 and 12 ft. wide; main halls, 9 and 12 ft. wide; stairs, 6 ft. wide, with rails, newels, and balusters of toa wood. There are to be all modern improvements introduced in the plumbing, pantry, and closet work. The arrangement of the chamber story explains itself. A large skylight with colored glass will be introduced to light the upper hall. The roof is to be covered with variegated slate. Total cost about $20,000.

The other front elevation and plans represent the very fine residence of Capt. Wm. H. Dimond, situated on the westerly side of Jones Street, between Washington and Jackson Streets, in this city. It was completed in the early part of 1879, is well built, and contains the usual amount of modern improvements for buildings of its class. At present prices of materials it can be duplicated for about $8,500. The main hall and stairway is handsomely panneled, and all rooms and halls on main floor, except the kitchen, are finished with molded cornices. As will be seen by the plans, the three principal rooms on the main floor and the main hall connect by double sliding doors, all of which are hung overhead, which does away with all metal tracks on the floor, and permits the covering of the floors entire, without any interruption in the door-way by the usual brass or iron tracks. The entire attic is floored over, and makes a very useful apartment for storage, play-room, billiard-room, etc. The walls of the attic above floor at the lowest part are about six feet, while in the center a height of twelve feet may be obtained.

We shall be able hereafter to render our illustration department much more interesting. In our April number we will present some excellent plans of one-story cottages.

Market Report.

All classes of building material remain firm, none having receded from former quotations. Plate glass has advanced some, and the different grades of crystal sheet, 21 and 26 oz., have moved upward from 10 to 15 per cent.

We repeat our report of February issue, as the ruling rates for lumber:

OREGON PINE.

Common Rough, up to 40 feet, per M feet			$18 00
"	40 to 50	" "	19 00
"	50 to 60	" "	20 00
"	60 to 70	" "	21 00
"	70 to 80	" "	22 00
Refuse Rough			14 00
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over, and Stepping		per M feet	26 00
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring		per M feet	27 50
Rough Clear for flooring, $1 less than above rates, per M feet.			
Second quality Flooring and Stepping, per M feet			21 00
Ship Plank, rough		per M feet	25 00
"	planed 1 side	"	28 00
"	planed 2 sides	"	30 00
Deck Plank, rough		"	28 00
"	dressed	"	32 50
Laths		per M	3 50
Cedar Shingles		"	

REDWOOD.

Rough Merchantable	per M feet	$18 00
" Refuse	"	14 00
Surface, No. 1	"	26 00
Surface, 1 x 8	"	25 00
" 1 x 6	"	24 00
" No. 2	"	18 00
Rustic, No. 1	"	27 50
" No. 2	"	22 50
" short, 8 to 10 feet	"	20 00
" " under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over	"	24 00
" " 7 to 11 feet	"	22 50
" " under 7 feet	"	18 00
" " No. 2	"	16 00
" Beaded, 12 feet and over	"	26 00
" " 7 to 11 feet	"	22 50
" " under 7 feet	"	18 00
Half-inch Surface	"	25 00
Pickets, fancy	"	20 00
" rough, pointed	"	14 00
" " square	"	14 00
Siding, ½-inch	"	20 00
Port Oxford White Cedar	per M feet	$30 00 to 45 00
Sugar Pine	"	30 00 to 50 00
Shingles	per M	2 00
Battens, ½-inch		75

PAINT MATERIALS.—During the past month a strong rivalry has prevailed in reference to white lead, the firms of Whittier, Fuller & Co., and C. T. Raynolds & Co., having advertised the various brands of California and Eastern white lead very liberally. Both firms appear in our advertising columns, to which our readers are referred for particulars. Otherwise the price of paint materials are but little changed.

HARDWARE AND NAILS.—Firmness of prices is maintained in the whole line, with an advance in nails over February quotations as appears by the following:

10 to 60 pennies, are quoted at				$6 50
8	"	"	"	6 75
6	"	"	"	7 00
5 and 4	"	"	"	7 25
4 and 5	"	brad heads	"	8 25
6	"	"	"	8 00
8	"	"	"	7 75
10 and upward	"	"	"	7 50
3 penny fines	"	"		8 50

DOORS, SASHES, BLINDS, ETC., remain as last reported. No considerable activity in demand justifying a rise in prices, they remain as heretofore quoted, and current prices being so near cost of production, there is no room for abatement.

Building Intelligence.

Our effort to render this department of our work perfect and complete, is unceasing. Our information, whenever possible, is derived from the architect having charge, and if misstatements occur, the fault is not ours. We seek for correct statements, and if the architects of this and other cities in California would only interest themselves to the extent of furnishing us complete and *exactly correct* reports each month, of the *contracts let by them during the month*, errors would be avoided. We again ask in kindness that this be done. Let each architect consider it a part of his monthly business which should not be neglected, and prepare his own report, and then errors will not occur.

Some one at the building gave our representative as the cost of Mrs. Peck's improvements on Stockton street, as appearing in our February number, the sum of $1,600, while in fact, $20,000 would have been more nearly correct. Had our good friend Gosling furnished us a proper statement of facts, this discrepancy would not have appeared. We do not claim that architects are under any positive obligation to report work on hand, but as this journal is generally recognized and accepted as the organ of the profession, we trust that the kindly feeling so unanimously expressed by the profession, will induce proper attention to this matter from all. We say to our readers once more, that we aim to be correct, and any statement appearing not in harmony with facts, is because those who might have informed us fully and correctly, have failed to do so. And when we are necessitated to accept information from those who enjoy but a limited knowledge of facts, errors are more likely to occur. Brother architects, please be kind enough, for your own sakes, to assist in making this department of this journal entirely reliable, and by all means avoid over or understating valuations, as it simply incites comment and ridicule. If exposure of amount of contract and cost is not desired in any particular case, the figures can be omitted.

We again request that each and every architect in this city, Oakland, San Jose, Sacramento, and in all parts of the State, send us by the 25th of each month a full list of contracts let during each respective month. Also, please give us such facts as may be in hand in reference to projected works, and future projects, and such other information as may be considered of interest to the general public, and to architects and builders generally.

It is unpleasant for us to state the fact, that *three* of the architects in this city are unwilling to furnish any statement, adding—"It is nobody's business what work or how many buildings I have on hand." We fail to discover in what way any injury can come to the gentlemen referred to, by extending the information desired, as we only ask a report for those jobs which have passed to contract, which, when reached, place the possibility of interference by others out of the question. We hope that it is more from a mistaken view of matters than a *selfish* and unkind disposition that influenced this reluctance. The information desired is sought after by the general public, and it is as much an accommodation to those interested in real estate matters as to ourselves, that this should be had. And as this journal is read by all classes in various parts of this State, and beyond the Rocky Mountains, completeness in this connection is desirable, as showing the extent of business prosperity in this city and State. We hope that all reluctance will be overcome, and that the gentlemen alluded to, and all others in the profession, will furnish the information desired. Complaints are frequently made at this office, that wrong figures sometimes appear, as the amount at which jobs are let. This is no fault of ours. When an architect, owner, or contractor states to us a specific sum as the amount of contract, we must accept the statement as truthful, and have no right to question the statement, nor have we any means of detecting the error when made. We can do more nor less than accept the figures given us, and those who recognize errors of this kind will do us the justice of relieving us from any blame. We do not make the figures in any case, and are not therefore responsible. We fail to discover any good reason why truth and accuracy should not govern in all cases. There is, however, this other view of the case. Sometimes certain things are reserved, which cut no figure in the principal contractor's contract. For instance, a contract may be let for the amount of three, five, or ten thousand dollars, which does not include certain things which are to be done or furnished by the owner at his own cost, which, added to the sum of original contract, would increase the sum five, ten, or twenty per cent., which additional cost and expense is generally added by architects, in rendering their statements. We dismiss this matter by again stating that we shall always seek to obtain correct figures, leaving the responsibility of all exaggerations upon those who misstate cases to us. It adds nothing to the credit of either architect, contractor or owner, to furnish unreliable figures, and we hope that architects will be careful in this matter, and maintain the integrity in this connection, that they are expected to exercise in all other matters. We know that some are exceedingly tenacious to represent exact facts, and hope that all will do the same.

SAN FRANCISCO.

Four two-story frame buildings, Lombard st., bet. Mason and Powell sts. Owner, E. Maher; architects, Meeker & Banks; contractor, Geo. Walker. Cost, $8,000.

One-story and basement brick building, Mission st., near Second. Owner, E. Boesch; architect, P. Huerne; brick mason, Thornhill; contractor, W. Lienard. Cost, $5,000.

Two-story and basement frame, south side Grove st., bet. Gough and Franklin sts. Owner, Brady; architects, Eisen & Curlett; contractor, J. T. O'Brien. Cost, $8,000.

Alterations of Primary School building, Powell st. Owner, City; architects, Eisen & Curlett; contractor, J. McNamara. Cost, $1,970.

Brick bulk-head at Silver Street Primary School. Owner, City; architects, Eisen & Curlett; contractor, M. Clarke. Cost, $995.

One-story frame, Valley st., bet. Church and Sanchez sts. Owner and builder, J. Grace. Cost, $700.

Alterations of dwelling, Sherman st., bet. Seventeenth and Eighteenth sts. Owner, G. Edwards; contractor, Wilcox. Cost, $400.

Two-story and basement frame, Jackson st., near Polk. Owner, Capt. Miller; contractor, Herman Mien.

Two-story and basement frame, Oak st., bet. Gough and Octavia sts. Owner, Mrs. O'Callahan; architect, P. J. Clinch; contractor, O'Rourke. Cost, $2,600.

Two one-story frames, Diamond st., bet. Nineteenth and Twentieth sts. Owner, Geo. Edwards; contractor, T. W. Wilcox. Cost, $1,400.

One-story frame, Noe st., bet. Sixteenth and Seventeenth sts. Owner, Small. Cost, $700.

Frame building, 45 ft. 10 in. x 120 ft. 6 in., Bay st., bet. Powell and Mason sts., for public resort. Owner, Louis Hydenaber; contractor, Thomas Worden. Cost, $2,000.

Alterations on Eighteenth st., bet. Noe and Castro sts Owner and contractor, Screiber. Cost, $1,200.

Golden Gate Woolen Mills, 250 ft. frontage, with two wings 50 ft. square each, cor. Twentieth and Anthony sts. Manager, D. McLellen; architect, A. Laver; contractor, John Cochran. Cost, $20,000.

Two frame buildings, Stockton st., bet. Chestnut and Francisco sts. Owner, Mrs. Crowe; contractor, John C. Classen. Cost, $3,500.

Improvement to building No. 1753 Howard st. Owner, D. Mahoney; architect, H. Guilfuss. Cost, $300.

OAKLAND.

One-story frame building, Grove st., bet. Eighteenth and Nineteenth. Owner, W. Smith; architects, Matthews & Son; contractor, Knight. Cost, $2,200.

Two-story frame building, Third ave., East Oakland. Owners, Haskell & Smiley; architects, Matthews & Son; built by the owners. Cost, $2,800.

Two two-story frame buildings, Twentieth st., bet. West and Curtiss. Owner, L. Shanahan; architect, Wm. Kirk; contractor, ———. Cost, $3,600.

One three-story brick building, Broadway, bet. Thirteenth and Central ave. Owner, E. Hook; architect, Matthews & Son; done by day work. Cost, about $20,000.

Two-story frame building for a school house; size, 70x40; located at Temescal. Owner, Rev. L. Serda; architect, Wm. Kirk; contractor, J. Brothey. The whole cost of the building will be about $5,000. It is the intention to spend about one-half of that amount now, and finish the building at some future time.

ALAMEDA.

Two-story frame building, cor. Oak and San Antone ave. Owner, —— Jands; architect, Bostwick; contractors, Bittleston & Christensen. Cost, $4,000.

Three-story frame building; size, 38x50 ft.; seventeen rooms; bet. Central and Alameda aves., and Oak and Walnut sts. Owner, —— Ollendorf; contractors, Bittleson & Christensen. Cost, $4,200.

One-story and a half frame building. Owner, —— Jewell; architect, S. & J. C. Newsom. Cost, about $1,800.

One-story frame building, cor. Oak and Encinal ave Owner, Mrs. Fletcher; architect, ———; contractors, Brown & Cotton. Cost, $650.

One-story and basement frame building, Versailles ave. Owner, Dr. Knowles; architect, W. C. Hoagland; contractors, Hodgkins & Hurlburt. Cost, $4,000.

SANTA ROSA.

One two-story frame building; thirteen rooms; Eastlake style. Architects, S. & J. C. Newsom; contractors, ———. Cost, $10,000.

One two-story frame building; fourteen rooms; Eastlake style. Architects, S. & J. C. Newsom; contractors, ———. Cost, $12,000.

STOCKTON.

Brick building; pressed brick front with San Jose free-stone trimmings. Owner, Hodgkins & Newell Bros.; architects, Percy & Hamilton; contractor, Jerry Robinson. Cost, $25,000.

MARTINEZ.

First-class training and breeding stables; main building 125 ft. long. Owner, D. Cook; architect, A. Laver; contractor, Chas. Ackerson. Cost, $14,750.

The California Architect and Building Review.

VOLUME I. NUMBER 4. | SAN FRANCISCO, APRIL 1, 1880. | $1.50 per Annum. in Advance. Single Copies, 15 Cents.

The California Architect
— AND —
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE
SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager.

Sent to any part of the U. S., postage paid, at $1.50 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

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A Card from Architects.

Believing that a well and ably conducted journal, devoted to Architectural, Mechanical, Sanitary, Scientific, and other kindred matters and subjects, is a necessity in this city, and judging from what has appeared in the QUARTERLY ARCHITECTURAL REVIEW, published by Messrs. Wolfe & Burnham during the current year, both in illustration plates and reading contents, we are led to the belief that the CALIFORNIA ARCHITECT AND BUILDING REVIEW, proposed to be published by the San Francisco Architectural Publishing Company from and after January, 1880, will be worthy of general support and encouragement, and that it will supply a long-existing want on this coast. *We therefore pledge our cordial sympathies personally, and hope that the enterprise will receive kindly recognition and liberal support from all Architects and Builders on the Pacific Coast, and from the public generally.*

DAVID FARQUHARSON, WRIGHT & SANDERS, S. H. WILLIAMS, THOS. J. WELSH, P. HUERNE, JOHN MARQUIS, P. J. O'CONNOR, THEO. A. EISEN, B. MCDOUGAL AND SON, WM. MOOSER, WM. CURLETT, H. T. BESTOR, MEEKER & BANKS, W. C. HOAGLAND, S. & J. C. NEWSOM, B. HENRICKSON.

JOHN A. REMER.

An Eastern Opinion of the Great Issue.

"Owing to the Sand-lot agitation in San Francisco, building enterprises, which would have involved the expenditure of millions of dollars, have been suspended, and hundreds of carpenters, masons, painters, and plumbers, who would be at work to-day, at fair wages, are idle. The 'Workingmen's Friend,' Kearney, had better be squelched."
—*Plumber and Sanitary Engineer, N. Y.*

The foregoing statement is wholly correct, as far as it goes, but contains only a faint outline of the fearful state of things existing in this city. Hundreds of workingmen of all classes are, and have for a long while been idle, and the families of many who have been accustomed to the usual comforts enjoyed by well-to-do mechanics and laborers, have been forced to the strictest economies, and some of them to actual privation and want. There can be no question as to the cause of all this. The rivulet can with no more certainty be traced to its source, nor the altitude of hills and mountains be determined, than the direct and immediate cause of past and present depression in all lines of mechanical operations and business enterprises. We fully understand that those who are parties to the cause, cannot be persuaded, by any system of argument or reasoning, to admit, accept, or recognize as true, any fact which points to them as the parties producing the greatly-to-be-deplored results, which have so materially crippled and broken down the business prospects of this city and State. Bewildered and enthused by the supposed possibilities, prospects, and hopes of personal and political advancement, and the allurements of conjectured opportunities to practice upon public funds and treasuries, the dishonesties charged by them upon almost every man who has held official position, has led to that abandoned recklessness of words and acts which has overridden all other interests and considerations. Men who close their eyes and willfully refuse to see, are as blind practically as those whose eyes are forever sealed against the light and objects of life. It is a truism the world over, that those who imagine that they discover the rogue and villain in every other man, use the eyes of rogues and villains to make the discovery; and the dishonesty which to them appears so prominent, is mainly the reflection of the corruptions of their own real natures. Pure water is never obtained from polluted wells, nor the perfume of roses from cesspools. The most lamentable part of the affair is, that so large a number of those who are most seriously affected and injured, should have permitted themselves to be duped into sympathy with a movement which has so seriously damaged the common interests of this State, and San Francisco especially; but false and seductive assertions, and the assurance of a grand revolution in business affairs generally, which would result in the enrichment of every poor man, and the humiliation of the wealthy, created the impression, and inspired the vain hope in the minds of the unthinking, which led them to join in support of a delusion which has wrought untold and unmeasured injury in all directions. This is the state of the case, as far as many mechanics of fair ordinary intelligence are concerned, while the larger proportion of the followers of impractical and irrational teachings, are too ignorant of the common rules and principles which govern the actions of men in business affairs, and in social relations, to comprehend or understand the extent or degree of injury they have assisted in bringing upon this entire community, and upon themselves individually.

Defamation, loud and strong, have been the favorite utterances of the agitation orators, with scarce an exception; and every man not in sympathy with them, has been stigmatized as rogue, thief, robber, and all the other base epithets commonly used by the low and vulgar minded; while in fact, with but few exceptions, the reviled and abused are faultless, in comparison with the characters who have gathered up the filth of the English language to hurl at every man who can afford to wear a decent suit of clothes, or who, by business qualifications and energy, is in comfortable or affluent circumstances. Some of those orators enjoy the advantages, if not the moral benefit of learning, education, and life experiences, in the more refined senses; and this fact calls in question, and with every right-minded man determines, the motives which actuate in such cases. When acknowledged simpletons, and rough, unlearned, debased and ignorant creatures utter unwise and indefensible assertions, they simply fulfill a law of their nature, and their sayings should be received and regarded as the ravings of practical fools. But when men who enjoy better advantages, and have tasted the pleasant fruits of culture and refinement, recognize, and practically adopt as their own, the reckless and debased acts and sayings of an ignorant, profane, and indecent rabble, the spectacle is astounding; and the conclusion is reasonable, that they are either mentally unsound, or morally depraved and debased: willing to sacrifice every acknowledged right principle of morals and manhood, to secure selfish and personal advantages, and gratify ambitions which would forever remain unsatisfied through better and more consistent and honorable channels.

The reason why we notice this matter at such length, is because we personally, as well as every other business-man or firm in this city, have been made to suffer great loss and injury from the causes enumerated, and we feel it. There is no question of the fact, that more than all other causes combined, this "agitation" has produced an almost entire suspension of building operations. This can be clearly established by hosts of intelligent and reliable witnesses. Almost from the hour when the pure atmosphere of San Francisco was first polluted by the foul breath of ranting, blasphemous, and disreputable men as leaders, a decided decline and falling off in all lines of mechanical operations and trades has been experienced, until it has worked down to present conditions, where actual poverty prevails among a considerable number of the mechanical and laboring classes, who have never before known the discomforts resulting from the non-employment of those who are expected to supply "bread and oil" for the family. The assertion or claim that the movement has "done some good," *may be a fact*, but for every single dollar of benefit flowing from it to the business or mechanical interests of this city, it has cost the citizens of California thousands of dollars in coin.

Cold Feet.

People often complain of cold feet while sitting in well-furnished and otherwise comfortable apartments. This is a matter of common occurrence, not only in tenement houses, but in homesteads and dwellings of greater pretensions.

It is a well-understood fact that when the human system is subjected to any direct drafts or currents of air an injurious effect is produced, and every thoughtful person is careful to avoid them. But in the matter of cold feet indoors, people simply wonder why it should be so, without seeking to understand the cause, although within the power of every one to do so. We submit the following suggestions, and if our readers will observe them, they will be able to discover why cold feet are so often experienced, even with the surroundings of elegant carpets, elaborate furniture, and other appointments of beauty and comfort. It is more the rule than the exception, that the floors of buildings are very imperfectly laid. In the general class of buildings erected by contract, the floors are tongue nailed, *i. e.*, nailed in the edges only, with the almost universal result that portions of the tongues are broken off during the process of "driving up" and nailing, every one of which breaks aid in furnishing an inlet for the air, whether much or little; and whatever quantity may enter by this means is just its own part of a whole.

A second material defect in house-building is found in the fact that as a rule, and with but few exceptions, the floors do not fit closely to the wall plates; sometimes open spaces from one-quarter to

a whole inch being left, through which a large amount of air passes up into the rooms, under and behind the base-boards, which, if not fitted closely to the floors, furnish no obstruction to a strong draft from below, which, sweeping in over the surface of the carpets, must necessarily cause cold feet to those who sit within the lines of its course. And this effect is greatly increased where frame buildings are erected with the studding running down to the main sills, which forms an unobstructed open space in the walls.

Another source of drafts is found in connection with bay-windows. Their various cornices, projections, and finishes, necessarily form considerable open space within their own construction, and from being constructed of numerous pieces and members there are a large number of unavoidable joints and cracks, each of which furnish air inlets, against the admission of which to the interior apartments attention is seldom paid. As a rule, bay-windows are finished on the inside with "panel backs" and other wood finishes, and even if the work is well put up at first it will open more or less in time by shrinkage, producing scores of apertures through which the air passes.

Again, almost every outside window and door frame placed in a building lets in a large quantity of air. This may be tested by a very simple method. A few fine threads half a yard long held in near proximity to any outside opening on a windy day will act as a tell-tale. We have often tested this condition of things by pieces of tissue-paper torn in strips of two or three inches wide, and, by holding them at various points and places, would be able to discover the ingress of air by the motion of the paper. Not only do currents of air find ingress by the means stated, from the outside atmosphere, but every hollow partition in a building furnishes its proportion and adds to the general effect.

Let any one living in an ordinarily built house, where proper care has not been practiced to prevent it, hold a candle near the run-way for the sliding-doors, when shoved back, and they will find that the draft will almost extinguish the light if there is any considerable amount of wind stirring on the outside. There are exceptions to this, and also hundreds of confirmatory instances. There is more cold air in ordinary partitions than people generally imagine. As illustrative; a hole one inch in diameter made by accident or design in one of the interior partitions of this office—a brick building—was incidentally noticed to discharge a strong current of air. This attracted the special attention of one of our youthful assistants, who obtained a piece of tin, and, after reducing the same to about four inches in diameter, slit it from the circumference to near the center, thus making eight or ten divisions, each of which were twisted so as to form the fans of a miniature wind-mill. This was secured to a shaft, etc., and placed near the hole, where for months it continued to run, and generally with such velocity that its parts could not be discovered, even on a moderately windy day.

All this goes to establish the fact that wind-drafts surround us on every hand, even in our homes, and it is safe to say that many cases of sickness occur from simple causes of this character.

Ventilation is highly essential to good health, but it should be so arranged as to be under control, and not indiscriminately distributed through every apartment, where it may work injury without notice. Persons sitting in front of a fire often experience coldness about their feet, especially the rear portion. The cause of this is, that a current of air is constantly being drawn into the fire from all portions of the apartment where a fire is burning, to supply the necessary oxygen to feed the flame, without which fires could not exist; and the cold air, being of greater specific gravity than the warmer air, naturally sweeps along over the surface of the floor or carpet, and around the feet of persons sitting near the fire, and as a matter of course cold feet must be the result. And if the supply of cold air is greater from any particular part of the room, such as a door opening, or any other aperture, a greater volume of air passes from that direction, and those who sit in its course must necessarily be the more affected with cold feet.

Reliable Canvassers Wanted

To canvass this city and State, and the entire coast, for this journal.

Double Wall-Boarding.

The question is often asked of all architects as to the value of double boarding the walls of frame buildings. We know of but one or two architects in this city whose practice in this regard differs from our own views of the importance of diagonal or double-boarded walls. We hold it adds fully one hundred per cent. to the strength and solidity of buildings, *when properly nailed*. Nailing is the all important factor in the proper construction of buildings in California, as mortising and tenoning is seldom used, except in framing well-holes, etc., and its adoption in general practice would not be good, as the timber used in the construction of the frame-work of buildings—Oregon pine—in its commercial condition shrinks so badly that neither clamping nor draw-pinning would insure close joints and shoulders for any length of time, and without this, mortising and tenoning possesses but little practical merit. Consequently, sufficient and solid nailing is a great necessity.

The material best suited for the purpose of double boarding is 1x4 tongued and grooved Oregon pine, nailed with three nails at each and every nailing, in each and every board. But on account of the apparent extra cost and expense of such material for the purpose, and the generally prevailing idea that other less costly lumber will answer as well, its use is never contemplated. Next to this is the ordinary 1x6 tongued and grooved Oregon pine, which is sometimes adopted by those who aim to secure good buildings, regardless of the small difference between this and a less costly class of lumber. But that which is more generally used, is surfaced, 1x6 Oregon pine, not tongued and grooved.

We mention the nailing feature particularly, because it is the great source of strength in California-built houses. Remove the nails, and we ask, what would sustain the construction? Will pieces of lumber cut in lengths and placed in vertical and horizontal positions, support each other, unaided by other binding or sustaining material or appliance? The answer is obvious, and the argument afforded by it is, that without nails, not a frame building in this State would support itself for a moment. Hence there is but one conclusion, and that is, that nails and sufficient nailing are important. And when we say sufficient, we mean more than a mere sufficiency to keep the parts together, and afford a partial solidity; we mean that sufficiency which will insure perfect firmness, and render the construction solid beyond all doubt or question. The frame of a ten-roomed house may be made to assume the shape of a building by the use of a single keg of ten-penny nails; but no mechanic would venture the assertion that more were not necessary to reasonable strength, nor argue that a greater number of nails would not increase solidity and firmness. If a ten-penny nail driven solidly into a timber furnishes a given amount of strength, ten such nails properly driven will increase that strength ten-fold. We do not pretend to say that nails may not be wastefully driven in parts where they may become valueless, but our proposition refers to their intelligent use. And we hold that the more nails that are used, the greater the strength obtained, so long as the number driven does not destroy the holding capacity of the timber into which they are inserted, by splitting and separating the fibers of the wood.

These facts cannot be successfully controverted, and being facts, they are worthy of serious consideration, involving as they do the strength and solidity of buildings erected of wood, and all other buildings and work in which nails become a factor in construction, laying of floors, etc. But in nothing is the necessity for abundant nailing greater than in the double or diagonally boarding of walls. And it is strange that men claiming to be competent, practical mechanics, possessing a knowledge of mechanical principles, should so generally practice neglect in this connection. As a rule, the number of nails used indicate that they are driven simply for the purpose of attaching the boards to the frame-work, instead of securing them firmly, for the purpose of giving strength to the construction—a result which can only be obtained by the free use of nails.

We admit that two nails at each nailing will answer all purpose in 1x6 diagonal boarding, but three adds to the solidity of the work, and are better. Whatever of resisting or strengthening power there may be in the boards, this latent quantity can only be imparted to the building by the nails used. Ten thousand pieces of boards might be placed against the frame-work without any strengthening value to the edifice, unless secured by nails or other fastenings; consequently nails are in this connection the king-pin of strength, and the more there are used without violating any mechanical principle, the stronger and better will be the work. But whether nailed with two or three nails at each nailing, diagonal or double boarding is decidedly important and valuable in the erection of frame buildings.

The Great Issue of the Day.

What we have elsewhere stated in these columns, in connection with the disturbed and irregular condition of affairs in this city, has been with a full understanding of the magnitude of the "Chinese evil," which in its direct, present, and prospective aspect, assumes a character which threatens the industries of our country, not only as far as the white laboring classes are concerned, but also in all lines of manufacture and producing enterprises. For the acknowledged extraordinary imitative aptness of the Chinese, and the readiness with which they acquire knowledge, even under adverse and restricted circumstances, very clearly illustrates the next certain fact—a fact as certain as the continued roll of time—that when the pressure of prejudice and opposition is removed, and they are permitted to enter untrammeled into the various industries as operatives, and not only allowed to learn, but are assisted in gaining a full understanding of American machinery, methods of operation, and the mechanical arts, Chinese capital will flow hither, and Chinese manufactories and producing interests will be established throughout our fair land; and the advantages possessed by them over white corporations and firms using Chinese labor, must and will soon crowd white labor to the wall; and through debased competition, so diminish profits on all things manufactured, that there will no longer exist any inducement for the investment of the capital of the people of our own and kindred blood. Consequently the industries of our country, in every sense and connection, are menaced and in jeopardy, unless a permanent and insurmountable barrier is established, and a perpetual preventive to Chinese competition secured.

But all this is auxiliary and secondary in this irrational agitation movement, the corner-stone and foundation of which is personal enrichment, political advancement, and public office for the leaders, workers and talkers; simply using the Chinese issue as the hobby with which to stir up the prejudices of the common people to its support, and upon which to reach official position, and secure other gains and advantages of a personal character.

The meaningless cry of "the Chinese must go," lacks both intelligence and sincerity, because every intelligent man must and does understand, that no howlings of infatuated and excited crowds or organizations, nor the rantings and brayings of political leaders, ever has, or ever will determine and settle questions of national import and character. Such matters can only be reached through national legislation, in conformity with the recognized laws and regulations of nations. The Chinese on the Pacific Coast are unquestionably an undesirable element, but they are, nevertheless, the people of a vastly populated and important nation, whose diplomatic and plenipotentiary representatives have a standing at the seat of our own government, and are recognized by the civilized nations of the world. And when a few men in San Francisco undertake to manage and dispose of a question which requires the combined intelligence and wisdom of senates and statesman, they assume a prerogative hitherto unknown in the history of the world, and which from the very nature of the case must fail.

China, with her hundreds of millions of people, is by no means an insignificant unit among the nations of the earth, but a nation of great wealth and resources, with wise philosophers and discreet minds to direct its affairs; and if the citizens of this country have a right to abuse and thrust Chinamen from its shores in the face of treaty stipulations, the same right exists, as far as the people of all other nations are concerned, and by the same rule applied, three-fourths of those who have been

the personal instruments of disgrace to San Francisco, would be compelled to leave our midst.

All reckless and wild excitements, and powerless combinations of men, which create antagonisms in communities, incite class prejudices and hatred, arouse the baser passions of the thoughtless and unlearned, provoke discord in common life, and disturb the natural channels of business prosperity, can be looked upon only as mischievous and injurious.

We are emphatically opposed to all such things, yet no more so than to Chinese, and every other competition which is calculated to diminish the opportunities of the toiling classes of the United States; holding as we do, the views heretofore expressed in this journal, that the peace, tranquillity, and prosperity of cities, states, and nations exist in exact proportion to the elevation and advancement, or the humiliation and degradation of the laboring masses.

But the inevitable must be accepted, and relief and redress in the Chinese matter looked for through the halls of Congress—never from the "sand-lot" of San Francisco, nor its injudicious and peculiar demagognes; who, while they repeat the standard cry of the clan, are manifestly influenced and controlled in their acts by other motives than a disinterested love of their deluded followers.

The fair presumption is, that men who *talk* love and pity for others, and work and strive for office and position for themselves, have the office more than their adherents, interests at heart.

The Rascal Heard From.

We have received letters from parties at San Jose and Sacramento, asking why they had not received this journal, they "having paid for same to our agent." As we have never had an agent or solicitor in either of those cities, it is evident that the swindling vagabond, Geo. R. Drant, *alias* D. R. Holmes, etc., etc., after "doing" San Francisco as long as he dared to risk it, went to the places named and gathered in what coin he could from persons who supposed they were paying a year's subscription to this journal. Newspapers and journals generally will do a good public service by heralding this fellow's name abroad as a swindling fraud. We have heard and learned enough of him and his operations to justify us in saying that he is a dangerous character, being of good address, understanding the cunning devices of his class of mean scalawags, and the methods by which innocent people may be entrapped. We swore out a warrant for his arrest some four or five weeks ago, which now lies in the police office. Singular as it may appear, parties have informed us that the scoundrel has been seen in conversation with detective Lees while the warrant was on file in the police office for his arrest, and that he is well known to many officers on the force. But we were not disposed to hand over $25 or $50, and so the fellow continued to defraud citizens of this city for more than a month after we had spent money in advertising him, and for weeks after notices had appeared in the daily papers cautioning the public against his movements.

Inspector of Plumbing Work.

In many of the Eastern cities efforts are being made to create the office of inspector of plumbing work. The great questions of sanitary precautions have received and are receiving a large amount of attention, and the developments which have been and are being made, establishing the fact that the lives of thousands of our race are yearly consigned to untimely graves through the agency of defective plumbing-work, bad sewerage, and the unskillful construction of buildings, is receiving merited attention.

There is no one department of house-building of more vital importance to the community than plumbing-work—defective sewerage not excepted. For if the latter is badly executed, proper plumbing-work will operate as an almost complete preventive to bad effects; but if the plumbing is defective, nothing then remains to resist the inlet and distribution of foul and health-destroying vapors into the apartments used for general living and sleeping purposes.

In noticing these facts it is impossible to avoid the reflection that the bad things suggested in this connection result from two causes: 1st. The desire of owners to secure the execution of work at a low figure, and refusing to exercise due discrimination between competent, reliable, and trustworthy men, and those who practice a calling without any proper knowledge of the mechanical sciences involved, and then expecting from them the skill of competent mechanics, while ignorant of every mechanical principle *as it should be understood*. 2nd. This disposition on the part of owners encourages and inspires with confidence men utterly disqualified to execute or even direct proper work, and as a consequence the inferior classes of workmen accept their success in securing jobs as an indorsement from owners, which, combined with their system of low figuring, enables them to secure a prominence in the ranks of mechanics by no means deserved or merited. But having gained the recognition of being "master workmen"—contractors—it serves their purposes, and in this position they manage to pass off as workmanship work which would not be tolerated, much less executed, by competent mechanics. In these two suggestions lie the source of the evils which so generally prevail at the present time, and which gives rise to the call for inspectors to do—what? Look after the work executed by competent hands to see that it is properly done? No. There is no necessity for this, for work performed by *competent* workmen is seldom less than entirely right, unless they are driven by competitive conditions and circumstances to slights and neglects. If there is anything on earth connected with manual labor which affords pleasure and satisfaction to men, it is the execution of faultless work by thorough mechanics. The poet with no more pleasure dwells in meditation upon a sublime thought or inspiration, nor the grandest conception more enraptures the devotee of art, than qualified and competent men feel and enjoy in the contemplation of good work done by their own hands. Hence the inspector necessity of the hour does not come from this source, but from that class of men who outrage every mechanical principle involved in the things they undertake to do. This is the germ of the situation in this connection, and no other can be added except to admit in argument that such men generally are influenced and actuated by motives of willful dishonesty, and that whenever it is possible to perpetrate a fraud or deception, if money can be earned or saved thereby, men are willing to forego every sentiment of right principle and honesty, and descend to the perpetration of any act which will bring coin to their purses. This is too largely the case in the present age of the world; but above all this we know that there are in all cities and countries sterling men in all branches of mechanical operations who are both capable and willing to execute perfect work when proper and fair compensation is their reward.

But the grand facts are just as they exist, and we do not expect, nor propose the attempt, to so change the affairs and procedures of the mechanical world as to bring all things to meet our own views. Botches and incompetents have always existed, and we presume they will continue for all time, and no effort of ours is likely to create a vacancy in this direction. Nevertheless we always have, and ever shall, deprecate the employment of the mechanical rabble to perform labor or services which require good judgment and skillful treatment, and shall ever draw very strong lines of distinction between comparative mechanical ignoramuses and those who are worthy the honorable distinction of being competent workmen.

Were it in our power to dictate imperative rules and regulations, we should enact a law which would compel every man desiring to operate as a "master mechanic" in any branch, to pass a thorough examination before a competent board of examiners, and not until he could establish proper qualifications, and meet the reasonable requirements of such a regulation, should he be permitted to practice his calling as a "master." If this could be, there would then be protection to competent men, less of bad workmanship, and more general satisfaction to owners and all concerned in the erection of buildings.

But accepting conditions as we find them, we advise that the leading plumbers of this city—journeymen as well as "bosses"—men who are entitled to this distinction by their co-equal or pre-eminent qualifications, take this matter in hand, and meet and consider the feasibility and practicability of the creation of the office of inspector of plumbing work in San Francisco. The columns of this journal will be at the disposal of those who are inclined to move in the matter, and if our individual influence and counsel is of any value, it will be freely given. Such a movement is sustained by several good reasons:

First.—If such an office should be created, and should be filled by some fully qualified, trustworthy, and really practical man, it would be the means of correcting many of the abuses which have existed in the business to the injury of both owners of property and skillful mechanics.

Second.—A schedule of right and proper requirements might be established and be made imperative, which would effectually exclude a large number of "practical plumbers" from operating as "bosses," or compel them to acquire both the mechanical skill and information necessary to operate as such. And those who are mentally, morally, and mechanically incompetent to attain a proper mastery of the business, would be required to seek some other avocation within the scope of their mental and mechanical status. By this we mean to say, that not for gold in pounds avoirdupois equal to the weight of lead that their hands could handle in ten hours, could some so-called "practical plumbers" execute a first-class job of plumbing work, and the retirement of such men from the business would be a desirable result as far as competent plumbers, owners of property, and architects are concerned.

But it is unnecessary to enlarge at present upon the many reasons which exist in this connection justifying action of some sort looking to the remedying of existing evils in the plumbing line. And we believe it both feasible and desirable that the suggestions we have offered be maturely considered and acted upon. We trust that it will not long remain a fact that more interest is manifest in almost every other city in the Union than in San Francisco in reference to the more vital, finer, and essential features of house-building.

Again we call upon the better classes of plumbers to consider the proposition submitted, and to act upon it at once. Who will be the first to move in the matter?

Why Water Stands on Outside Steps.

Endless complaints are expressed during the rainy season, in reference to water standing on the outside steps of houses during, and for a long time after a rain. Ladies in particular suffer great annoyance from this cause. The fault in all such cases is improper construction, and the blame and responsibility rests upon those who executed or controlled the work. Every journeyman carpenter *ought* to understand the necessities of the case, but, strange to say, they do not, as a rule, and scarcely one in ten of the outside steps built in San Francisco are constructed with the proper pitch, although it is no more difficult nor expensive to construct them so as to shed the rains than to have them hold a puddle of water on every tread.

In view of this common error, it becomes necessary for the architect to define in his specifications exactly how much pitch each tread should have; and although a trifling matter in itself, as far as the amount of labor and skill involved are concerned, its materiality to the comfort and convenience of the occupants of buildings is such that special attention should be paid by the architect, at the time of construction, to see that the proper pitch is given. As often as otherwise, the immediate fault lies with the mechanic doing the work. It is sometimes a difficult matter to induce journeymen to obey orders, when they are directed to give each tread one-eighth of an inch pitch to each four inches of width of tread. With many, the idea prevails, that water will run off of any plane which is not level. This is a right conclusion in reference to liquids finding their level, but when applied to outside steps, the fact is demonstrated in thousands of cases, that water will stand in puddles on steps put up with much less pitch than three-eighths of an inch to one foot of width.

NO COUNTRY, however naturally full of resources, will become rich and prosperous, or after becoming so, long remain so, unless the arts and industries are fostered.

The Chinese Question.

In a purely and exclusively political sense, it might not be proper for us to notice the subject in this journal, nor do we propose to do so now, in its political aspect. But, as affecting the mechanical, manufacturing, and laboring interests, it becomes a legitimate subject of review in this journal.

We assume no prophetic inspirations, but express the humble opinion, formed and matured by sixty years' experience and observation, nearly thirty of which have been spent in more or less direct contact with this peculiar people, that no single consideration or matter in connection with the history of this nation, aside from that which determined our existence as a people and government, has ever been presented—no question of greater magnitude, or more pregnant with results of deeper or more vital interest to the country—than the unrestricted immigration of the Mongolian race to our shores.

California, after an experience of more than thirty years, has decided, through the ballot-box, by an almost unanimous vote, that the Chinese are not a desirable element; and if the question was again submitted to the people of this State, upon its own merits, there would not be a vote cast in favor of the presence of Chinese in this State, in any number whatever, except by those who care only for personal gains and profits, without any regard to the interests of the masses. Such men as Colonel Bee, enjoying the luxury of a lucrative appointment under the Celestial government, and others who draw pap and coin from the same source, naturally proclaim "for the Chinese." What to them are the sufferings of thousands of laboring men and women, so long as they can live and luxuriate upon Chinese patronage? And so with merchants and other, who, from connection with Chinese operations, make themselves rich. What is it to them, if tens of thousands of their own blood and race are impoverished and rendered destitute? Talk of human sympathies!—it is a sweet theme for the poet's pen, and touches the tender chords of the human heart, when in rightful play and exercise; but when Fortune holds forth her golden hand, and bids her votaries come, principles and sympathies wither, and judgment becomes pliant and submissive to conditions, and but few of the human race, under such circumstances, are able to resist the temptation, even though the hearts and homes of thousands have to be desolated to secure the glittering prize. Aside from these, there is but one opinion, one sentiment, one feeling; and if, by popular vote in this State, the question could be forever put to rest, the decision would be most emphatic and final. And why? Because experience has demonstrated beyond all question, that the presence of the Chinese people has been and is a great curse to this city and State, and will prove so to any city and State where their presence is permitted in any considerable number.

The interests of all mechanical, manufacturing, and producing classes are at stake in this issue. Chinese competition is the great ax which lies at the base of the tree of white labor, ready to fell to earth the noble growth of centuries; for it must be remembered, that this glorious country was founded by the sons of labor, and the toiling yeomen who trod its fields at birth moved as one man in the protection of their common rights; and by their strong arms and indomitable wills, drove oppressors from our soil. Shall we, of this later day in our nation's history, permit another foe, though of quiet and insidious mien, and with no pretense of war, to invade and desolate the heritage of our forefathers, paralyze the arms of millions of our own kin and blood, and spread poverty and want throughout our thus far God-blessed land? As surely as thistles from thistle-burs grow, or vermin from uncleanness rise, this condition of things will come to pass, if the Chinese race is permitted to enter the fields of labor in the United States.

The history of the human race demonstrates the fact, that where and just so far as labor is recognized as honorable, is protected, and receives just and right compensation, peace, tranquillity, and prosperity abounds. And just so far and to the extent that hardships and oppressions are enforced upon the working classes by any set of circumstances or conditions, privations, poverty, want, suffering, and rebellious discontent ensues.

Under the best of circumstances, Chinese competition will produce the latter; and under adverse conditions, a frightful state of things may be anticipated. And we say, once for all, that if unrestricted immigration from the Flowery Kingdom is permitted, the result will be turmoil, strife, and bloodshed for our children, if not for ourselves.

Our Apology.

Should any of our readers consider that this issue of the REVIEW contains too much agitation, political and Chinese matter, our answer is, that we have simply followed a law of the human mind in what appears in these columns. In common with all other architects, we have suffered fearful business havoc on account of these things, and have a right to cry out against them. The events and occurrences of the past two or three years have fallen more heavily upon architects, than any other profession or business, none excepted. If decline in business had come from natural causes, architects would have no right to complain. But when men by the use of intemperate, illogical, indecent, and fierce language; rash, unwise and injurious acts, and a course of conduct at variance with good government, reason, and common sense, cripple and almost entirely destroy legitimate industries and professions, it is right and proper on the part of every one who may have the opportunity, whether by pen or oral declaration, to rebuke and denounce the evil things. We feel in duty bound, as the representative organ of the architectural profession on this coast, to express plain views and opinions upon all matters and questions directly or indirectly involving the architectural and building interests, and having conversed with a majority of the gentlemen most prominent in the profession, we are satisfied that we fairly represent the general sentiment of our professional bretheren upon the topics in consideration in this connection. And if the final determination of the agitation and Chinese questions could have been delegated to them, the quiet of this city would long since have been secured, by the sending away from our shores of every almond-eyed son of China; compelling preachers to attend to their legitimate business of proclaiming salvation to sinners, instead of shouting demagogical harangues to stimulate, if not to incite thoughtless crowds to riot; placing where they rightfully belong, all adventurous tramp orators who prowl through the country, taking up with anything, and seeking adventurous opportunities to turn a penny so as to save them from labor; and whipping foul-mouthed teamsters back to manage the reins of horses, instead of seeking to secure or control those of our city or State government.

A General Sentiment.

If there is any one thing more detestable in journalism than another, it is in that class of papers, periodicals, and journals conducted by men whose discretion and circumspection is so great as to forbid a frank, fearless, and candidly expressed opinion upon subjects of public interest, where doubt exists as to the most popular side of the issue; whose idol is their subscription list, and whose god is the dollars received in payment for advertisements; men who cringe and bow the knee to parties and persons from whom patronage may be expected, and who remain silent upon important issues, of however great public interest, to subserve their own and the personal interests of others.

When men assume editorial robes and responsibilities, the public have claim upon their intelligence and judgment, and upon their views and opinions on all important issues and questions presented in the columns of the paper published by them, or any other which affects the general interests of the community; and those who assume the privilege of silence and non-commitalism when great interests are at stake, fail to properly discharge their self-assumed obligations to the community from which they receive support. Subscribers to a journal of any sort do not pay their money simply for the printed paper, which abstractly has but little intrinsic or commercial value, but for the information contained, and the honestly expressed views and opinions of those who dictate or prepare the matter printed. Papers generally, after being read, are consigned to the flames or other base uses because their real value has been extracted by being read. And the patrons of a journal have claims as much upon the opinions of its proprietors as upon the delivery of the printed sheet. Every intelligent reader expects, and has a right to expect, an expression of sentiment from the editor of the paper which receives his support. Whenever matters of public interest are presented through the columns of a paper, the first inquiry made by those who read the intelligence communicated is, "What is the editorial upon the subject?" And when none appears, the reader naturally conceives a feeling of loss and disappointment; for it is supposed that the mind capable of conducting a journal of any sort is qualified, and will season all matter which concerns or involves the common interests of the community, with an opinion or statement of convictions upon the issues involved. Otherwise, reading such publications is like a host inviting guests to his table and setting before them courses and dishes of unnamed viands without any explanation. The food may be good and wholesome, and may be served on platers of solid silver or gold, but it is eaten with better relish and appreciation when the character and quality of the food is made known by those who furnish, prepare, or serve it.

Sometimes editorial views may not be received and approved as correct by a majority of patrons, but liberal-minded readers always prefer and appreciate errors plainly and fearlessly expressed, to suspicious silence, or qualified expressions of doubtful or subservient character.

It Is So.

All things being equal, there is no good reason why women should not enjoy as good health as men. Yet it is an admitted fact that there is more sickness comparatively among the female and juvenile classes of society than among the adult males. We have repeatedly sought to impress upon the attention of our readers the reasons why this should be so, and we again repeat the statement that in thousands of houses in this city the plumbing and sewer-works are so imperfectly executed that the sewer-gases are admitted into the occupied portions of the building; that sewer-gas is exceedingly dangerous to health, and one of the battle-axes of death to destroy human life; that mothers and children, being more at home than the adult males, are far more exposed to its evil effects; consequently in houses where the defects mentioned exist—and there are a large number of them—the female portion of the household must be the more liable to sickness. The following extract from an Eastern exchange is to the point: "Dr. John H. Griscom, one of the first writers on sanitary science in this country, remarked that more women receive dispensary relief than men, the proportion being twelve to ten, and sometimes as great as nineteen to eleven. This contrast is more striking in view of the greater amount of intemperance among the males. It is probably due to the fact that women, both night and day, inhale the polluted atmosphere of tenement houses, while their husbands and children pass a considerable portion of the day out of doors under more healthful influences."

Then and Now.

In the days of our boyhood, machinery in connection with house-building was unknown. Everything was then "worked by hand," and not until our apprenticeship years, were machines for the preparation of material of any kind for building construction purposes heard of. The first innovation of hand-labor, were machines for surfacing lumber and working flooring, and their introduction met with bitter opposition from the working classes. And although they are now considered almost a necessity, and but few mechanics would be willing to perform by hand the hard labor done by these machines, the prevailing sentiment at the time of their introduction was intensely in opposition to them. Public meeting and procession demonstrations were enthusiastically indulged in, and binding pledges administered and taken, that no carpenter should lay, nor even perform labor in or upon a building where machine-worked flooring was used. Time, however, worked its changes, and from the first machines designed to perform the heaviest part of labor, a thousand other devices have been perfected, by which, at the present time, nearly every thing used in house-construction and finishing is shaped and prepared by machinery.

Architectural Proportion.

Messrs. Bicknell & Comstock, architectural publishers, of this city, have recently issued a second and revised edition of "Atwood's Rules of Proportion," some account of which we desire to present to our readers. The book is of moderate size, and is sold at the low price of $1. Considering this figure and the usefulness of the treatise, we unhesitatingly say it should be in the hands of every architect and builder who desires to proportion his work in a way best suited to the ends for which it was intended. The author introduces the subject by some general remarks upon proportion, from which we quote: "In building there are two kinds of proportion, but widely different in their application. One is mechanical or constructive, and the other architectural proportion. The former determines the quantity of materials used in construction, and subject to the four kinds of strains, namely, tensile, compressile, lateral and twist strains; the latter determines the relation members should bear to each other when employed to beautify and improve the interior and exterior of buildings. With the latter we have most to do, though both are so intimately blended that it is impossible to fulfill the requirements of "well building" without their union in practice. Our sentiments respecting proportion are derived from experience, the use to be made of the building, and the materials that compose it. Walls of iron will support a given weight with less thickness than wood, and brick with less than stone. Walls may be too low for their length or too high for their width. They may not be thick enough to sustain the compressile or lateral strains of the roof. Spires or towers may contain too many or not enough diameters in hight. The same is true of door and window openings, or any opening in a wall. When buildings irregular in plan and composed of two or more parts or additions vary greatly in size, one being very high and the other low, we say they are disproportioned, or that the equality of ratio used to determine length, breadth and height has been either destroyed or never contemplated. And in such cases our judgment confirms the opinion of their lack of fitness; and our conception of a proportion being formed upon the circumstance of its fitness for the subject treated, it is only when we see parts of the building adjusted with due regard to this principle, that we say they are well proportioned or that the building is in proportion."

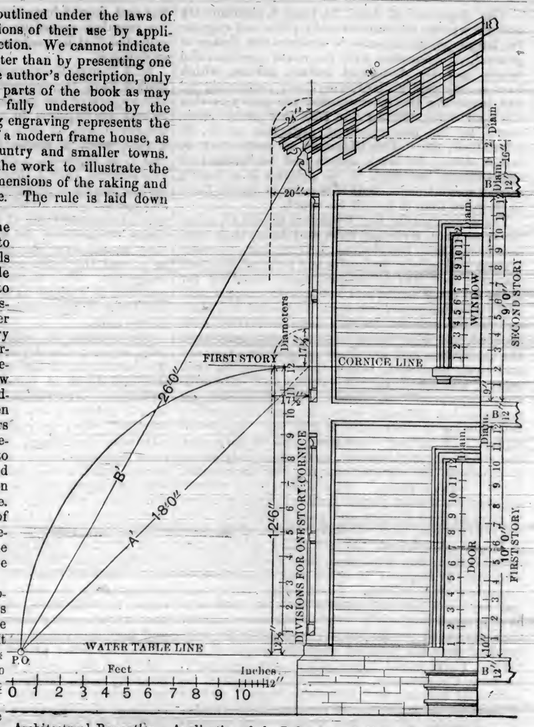
The first part of the book is devoted to a consideration of the proportions of the five orders of architecture, upon which the author has employed considerable originality of treatment. The proportions of these orders display the highest genius of the art, and are probably the most perfect and absolute standards that can ever exist. It is from those proportions that the author derives those practical rules which may be applied in the construction of modern buildings. One radical change which he introduces in considering orders, we should note in passing. The ancients commonly divided a diameter into 60 parts or minutes, and in the examples usually given, 10 diameters are used, each being divided into 60 parts. But this author has increased the standard to 12 diameters, and in order to preserve the same ratio, divides each diameter into 50 parts or minutes, instead of 60. His reason for this is, that such a number of diameters shall be employed as will most readily resolve heights into feet and inches, and thereby conduce to practical applications. Twelve diameters are undoubtedly more convenient for this purpose than 10 diameters, as heretofore employed.

Concerning the use to be made of the standards of proportion contained in the five orders of architecture, the author remarks: "In external decoration, the practice of applying the most suitable proportions of the orders, while superfluous members are rejected or thrown out of the composition or design, is common among modern architects. Smaller ones are enlarged as taste and experience direct. Now, what we propose to do is quite similar. Only we shall, by the aid of accepted models, systematize our convictions of taste and experience, reducing them to a working standard, whose operations, though consistently limited, are clearly defined. We are thus led to devise a standard of measure corresponding to an order of architecture, and hence a standard proportionally ordered."

We think from the above statement of the scope of the book, and the quotations which we have made from it, that our readers will be enabled to form an adequate conception of its usefulness. The second part of the work is devoted to the statement of practical rules established as outlined under the laws of proportion, and to illustrations of their use by application to everyday construction. We cannot indicate the value of these rules better than by presenting one in detail, together with the author's description, only adding so much from other parts of the book as may be necessary to make it fully understood by the reader. The accompanying engraving represents the part elevation of the end of a modern frame house, as commonly built in the country and smaller towns. The plate is introduced in the work to illustrate the method of obtaining the dimensions of the raking and level cornices for the house. The rule is laid down as follows:

"Divide the height from the bottom of the water-table to the second-story window sills into 12 diameters. Divide one of these diameters into 50 minutes for units of measurement, and give the proper proportions for a one-story cornice without frieze or architrave at this point, namely, 70 parts of minutes. Now enlarge this size in accordance with the directions given for superimposed members above the first story. Reduce the parts so obtained to feet and inches, which would be the horizontal projection at the eaves of the house. Determine the pitch line of the roof and make the gable-end projection equal to the inclined projection at the eaves.

"To determine the proportion of any of the molds required to ornament the projection, increase the unit of measure as many times as there are parts designated in the order for the molding selected."



Architectural Proportion.—Application of the Rules to an Ordinary Frame Dwelling.

The rule referred to above for proportioning superimposed members is too long to quote in full in this connection. Careful study of the diagram and comparison of one part with the other, keeping in mind the standard of measure first obtained, will indicate to the reader the general method pursued by the author.

Besides the illustration which we have presented, there are many other practical examples given in this book—some for elevations, some for interior finish, and others for individual members, moldings, &c. The book throughout is of practical interest to all students of architecture as well as to practical men. The work closes with a supplemental chapter of notes, which present some of the most important rules in a condensed form. Concerning Rule 10, which our engraving illustrates, the notes read as follows:

"After the proper proportion of the cornice is obtained, it may be trimmed with few or many members to accord with any of the styles, and in any form, provided the proportions of each member are regulated by the standard proportion of the order. If a cornice mold and *fascia* are used, give each the number of parts designated in the order. If bed mold and frieze are added, give these their respective number of parts, without regard to the intermediate members of the order."

There is also a table of comparative proportions, taking the temple of Jupiter Stator as the Corinthian example, and the Arch of Titus as the Roman example, from which a third or mean proportion of the several parts is derived. The table of comparative proportions is carefully worked out through all the details of the order, the parts of each individual member being placed opposite its name, thus presenting it in a shape to make it of the greatest usefulness to students and practical men.

Contractors Responsible for Ten Years.

In some of the European countries, contractors are held responsible under the law, for a period of ten years after completion, for every defect that becomes apparent in the construction of buildings. The legal regulations are such, that if weakness or insufficiency of strength in any part develop themselves, the contractor is held accountable, and is compelled not only to correct the defect and insufficiency, but to pay all damages that may occur to persons or property from such improper construction. The plea that the specifications had been followed avails nothing. Neither ignorance, neglect, nor incompetency on the part of the architect relieves the master-builder. He is supposed to understand fully the carrying and supporting weight and capacity of every timber, column, girder, wall, and all other things used; and the law forbids the use of anything not amply sufficient for intended purposes, or which fails to provide entire safety under all circumstances.

The effect of such a law simply compels men to become *masters* of their business, in fact, before assuming the master's cloak, and renders it difficult for incompetent men to impose upon communities by pretensions to qualifications not possessed—an overabundance of which exists in California, and the United States generally. Rigid restrictions are sometimes annoying to competent men, but never damaging beyond the matter of annoyance. It is the mechanical frauds that suffer in all such cases, and we in no wise sympathize with those who arrogate to themselves the ability to perform acts and responsibilities beyond the reach of their mechanical or intellectual capacities, and we heartily wish that compulsory regulations were in force in this city, which would compel men of mean abilities to seek pursuits in keeping with their imperfect understanding of mechanical principles, rules, and correct practices.

ONE Jones, employed in a manufacturing establishment, did not put in an appearance the other morning; but just before dinner, his wife came in, and said, in explanation: "You must excuse him. He and I had a little dispute at the table this morning, and he won't be able to work before the middle of the week." The employer stated that the explanation was satisfactory, he having been married twenty-five years himself.

The Argonaut of April 3d, page 8, contains six articles written in unmistakably plain and expressive language, in reference to matters and things in general, in connection with the vexed questions and issues, and the doings of certain parties, which have so effectually upset everything pertaining to, and involving the interests and prosperity of this city and State, during the past two years: comments on the late elections, criticisms on S. F. journalism, &c. The language in parts may be rather strong for weak nerves and tender-hearted conservators, but each of the articles is so nearly correct in sentiment, that it is safer to accept them as they are than to lop off too much.

The newspapers of San Francisco should all adopt the same plain style and rule, and define their position from *honest* convictions, leaving out of consideration journalistic jealousies and personal likes and dislikes; act like intelligent men, standing far above all petty strifes and influences; grapple with every question presented, upon its merits, in a plain and fearless manner, leaving their circulation, cash account, and advertising business contingent upon the correctness and soundness of positions assumed and views expressed, rather than "going for each other," and for the sake of gaining an "extraordinary enterprise" advantage, for which not one reader in ten thousand cares a fig, and then puffing and blowing in their columns over the "wonderful exploit" of having done something of very easy and simple accomplishment, and which only serves to illustrate the sly and cunning devices resorted to, to "make a point." If school-boys or collegiate students were to pursue similar courses of action to excel in their studies, and gain advantages over their classmates, as is adopted by some of the boys of larger growth and maturer years, who control journalism in San Francisco, they would either be subjected to corporal or other punishment, or be disgraced by expulsion. Journalistic rivalry and jealousy, and personal enmity between men who have grasped and wield "the power more mighty than the sword"—the pen, are responsible for nine-tenth of the evils inflicted upon the people of this State. There would have been no Sand-lot party, no new Constitution, no half-shot preachers, no accidental mayors, no "Honorable Bilks," no ruin of business, no suspension of legitimate enterprises, no processions of men and women with banners bearing the motto, "Work or Bread," while seven-eighths of the crying crowd hoped not for work, but bread without work, and many of them possessed well lined purses and bank accounts—had the entire press of the city united in treating with contempt contemptible things, allowing them to pass into deserved oblivion, instead of writing up filthy mouthed pigmies into patriotic giants, and knaves and scoundrels into honest reformers!

EDITOR CALIFORNIA ARCHITECT AND BUILDING REVIEW:—I would like to obtain an expression from you, through your journal, on a subject that is of interest to the architects, builders and real estate owners, as there seems to be a great diversity of opinion on the subject. Now to illustrate—say A, a property owner, is going to build a house adjoining B, and finds that in excavating he will undermine B's house. It would seem to me that B should be required to protect his own property and pay all expenses connected with underpinning. Some persons claim that A should pay, and that a law to this effect exists. Now, if such is the case, I think that you will agree with me that it is unjust, for it opens the road to sharp practice. Say that A makes a statement that he is going to build at a certain time; B hears of the same, and starts in immediately to build, and says that "I will place my foundation near the surface, and will compel A, who intends to excavate and start his foundation deeper, pay all expenses for underpinning my house." By a practice of this kind, a man owning a piece of property can force his neighbors living on each side to pay for putting a foundation under his house. In this article, it would be well to state, I do not refer to buildings constructed of brick and in the fire limits, as there is a law on this point requiring persons constructing brick and stone buildings, to start at least fourteen feet below the curb level, and parties conforming will not be responsible for damages to contiguous buildings, the walls of which have not been constructed to the standard depth.

Yours respectfully, T. J. W.

In answer to our correspondent's inquiry, we reply, that in our opinion, every owner of property has and should have the right to use and improve his premises according to his wishes and desires, provided that he conforms to municipal regulations in doing so.

If A desires to excavate for a cellar, he has and should have the unconditional right to do so, and the owners of the property on either side, should be and are required to underpin and protect their improvements, at their own cost and expense. As a rule, when A wishes to excavate for a cellar, B and C as adjoining owners, complain of hardship, and contend that A should bear the expense of underpinning their property, because the cellar is for the special convenience of A. But the argument is not substantial; for if B and C, or either of them, desire to excavate for a cellar on their property, they would have the same rights in the premises as A, and the latter would then have the right of complaint. This feature of the case is simply a question of "whose ox is gored." The first of three neighbors to dig a cellar, whether A, B or C, is the happy man.

Sec. 5, Chap. VI, order 1281, as amended May 16, 1876, says: "The depth of fourteen (14) feet below the curb level of the street is hereby fixed as the standard depth of foundations for brick or stone buildings. Any person excavating for or commencing foundations at a greater depth than the above standard, shall be responsible for all damages to adjoining buildings, the foundations of which have been constructed at the standard depth. No person constructing foundation walls down to the standard depth shall be responsible for damages to contiguous buildings, the walls of which have not been constructed at the standard depth."

This order refers to the depth of foundations for *brick or stone* buildings. We find no ordinance bearing upon the same subject, in reference to frame constructions; but the principle of law promulgated by the order quoted has heretofore governed in such cases, and we feel safe in stating, that where a party desires to excavate for a cellar, and such excavation extends below the foundation of the adjoining property, not exceeding fourteen (14) feet, the owner or owners of such adjoining property must underpin and protect his or their improvements; provided, the party excavating for cellar or other purposes shall have properly notified the adjacent owners of intention to excavate.

We know of no instance where this question has been legally tested. In our individual practice as architects, we have frequently had such issue arise, but always ending with the owners of respective properties taking care of their own premises. And if brought to trial before any court of competent jurisdiction, we think the decision would sustain the views herein set forth.

A Pleasant Picture.

"There is a man," said his neighbor, speaking of a village carpenter, "who has done more good, I really believe, in this community, than any other person who ever lived in it. He cannot talk very well in prayer-meeting, and he does n't often try. He is n't worth two thousand dollars, and it 's very little that he can put down on subscription papers for any object. But a new family never moves into the village that he does not find them out, to give them a neighborly welcome and offer any little service he can render. He is usually on the look-out to give strangers a seat in his pew at church. He is always ready to watch with a sick neighbor and look after his affairs for him, and I 've sometimes thought that he and his wife keep house-plants in winter just for the sake of being able to send little bouquets to invalids. He finds time for a pleasant word for every child he meets, and you 'll always see them climbing into his one-horse wagon when he has no other load. He really seems to have a genius for helping folks in all sorts of common ways."

How many such carpenters have we in San Francisco? In our contact with the laboring classes, we have met many excellent and worthy men, of large and generous hearts, and if the balances were applied, their weight in the great scale of human kindness would by no means be light. There is many a noble soul, under a rough exterior.

Reliable Canvassers Wanted

To canvass this city and State, and the entire coast, for this journal.

EDITOR CALIFORNIA ARCHITECT AND BUILDING REVIEW:—I am pleased to note the interest shown in your valuable journal as to sanitary plumbing. It is a question, I think, understood by but few. Although there are a great many self-styled plumbers and sanitary engineers, they really know but little or nothing of the business; they neither understand the theory or the practice, and people building are often deceived by them, and do not know it until their work is done, and it is too late to remedy the defects, without large expense and the tearing up the house. There are but few persons living in our large cities that are not affected by bad plumbing. Then, are we not all interested in the subject? Would it not be a good move for plumbers to establish technical schools in our cities? Or, at least, have a place where they can meet and exchange views on the subject.

It seems to me that it would be of advantage to the trade, and to parties requiring the services of a plumber. It is a well-known fact that water is but a temporary preventive against sewer-gas. There is an affinity between sewer-gas and water, the same as the magnet and the needle.

To sleep in an apartment closed tightly, with a jar of water on the floor—in the morning the water will be found charged with carbonic acid gas. When the water becomes thoroughly impregnated with gas, the gas will pass through, as though there was no obstruction. Sewer-gas is heavier than natural air, and will not rise, unless it be forced by heat or strong currents, which are always found in our sewers and waste-pipes. Mr. George E. Waring, of Newport, Rhode Island, who is acknowledged as being one of the best-informed men on sanitary matters, says that "water as a seal against sewer-gas cannot be relied upon—the gas passes through the water." And what better proof is wanted than to go into most any residence, from the finest to the poorest, and find, where there is a waste-pipe, proofs of these assertions?

Then it is not surprising that there has not been some way devised to positively keep sewer-gas out of a house.

There are traps of all shapes and descriptions; traps with hinged-valves, float-valves, and balls; but the best of them become clogged in a few days with hair, matches, hairpins, and other matter, and are held open, and are worse than useless; for instead of their being safety-traps they are death-traps.

Then there are metal and rubber-seals for closets, which are good, if it were possible to get along without an overflow to provide for accidents, which spoils it all, and goes back to first principles; for you have to trap your overflow, and still rely on water as a seal. It is, to use a homely phrase, like putting the spigot in a barrel, and knocking out the bung. No matter how much of a trap of water, whether three inches or three feet, sewer-gas will come through.

Now is there not some other way to get over this trap question? Can there not be a seal made of some kind that will dispense with an overflow, and provide for leakage and accidents in valves?

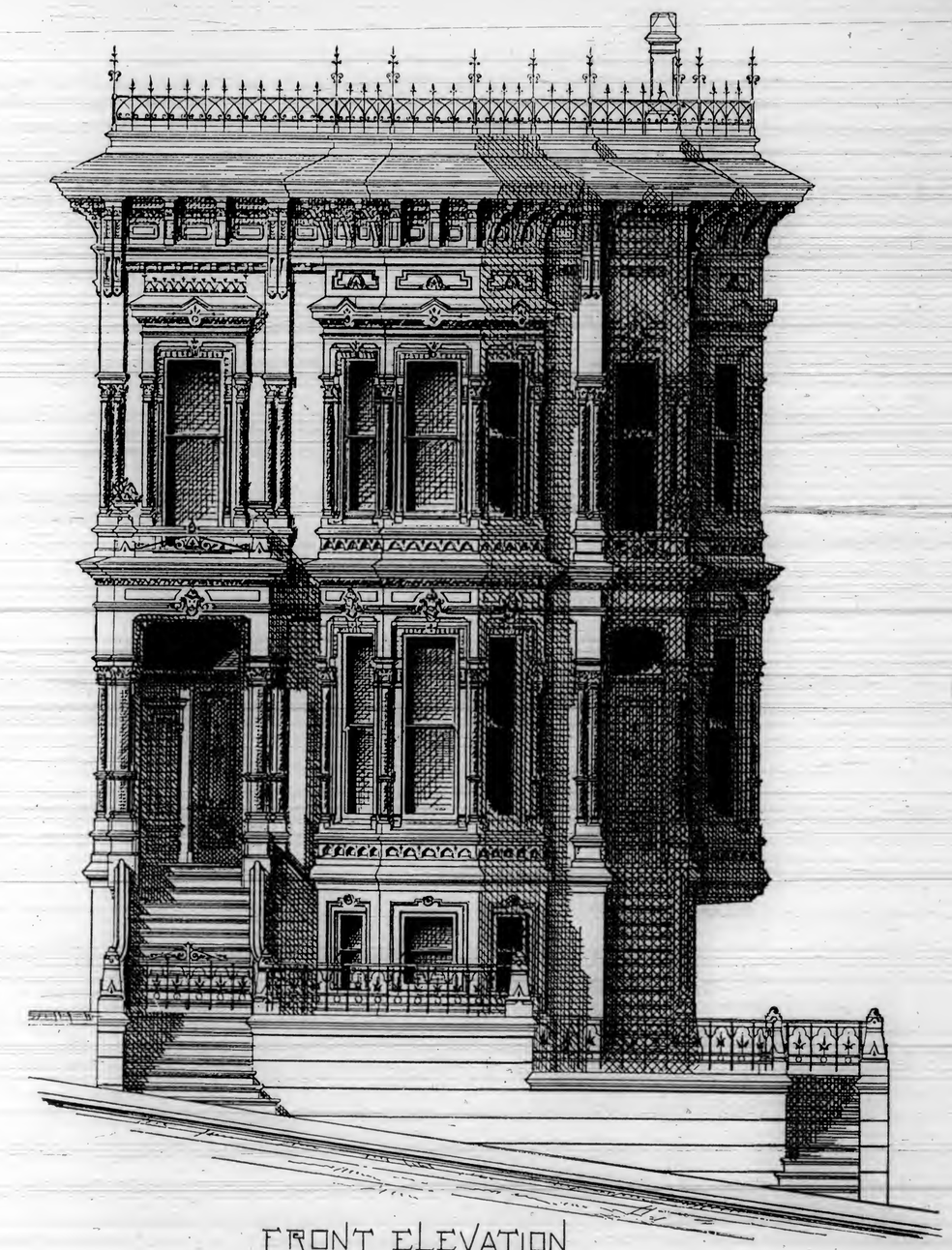
There is a large field for improvement. If such a thing can be accomplished, I am sure it would meet with the success it deserves, and confer a blessing on every one. Your truly,

A SUFFERER FROM BAD PLUMBING.

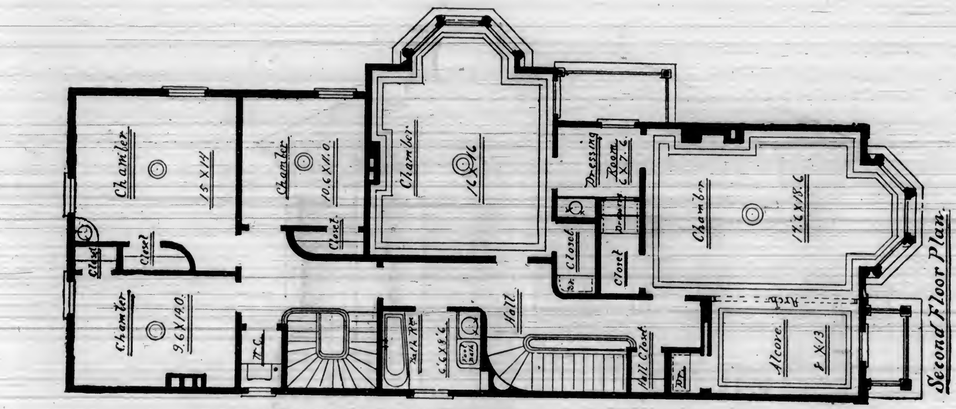
Effect of Sanitary Operations.

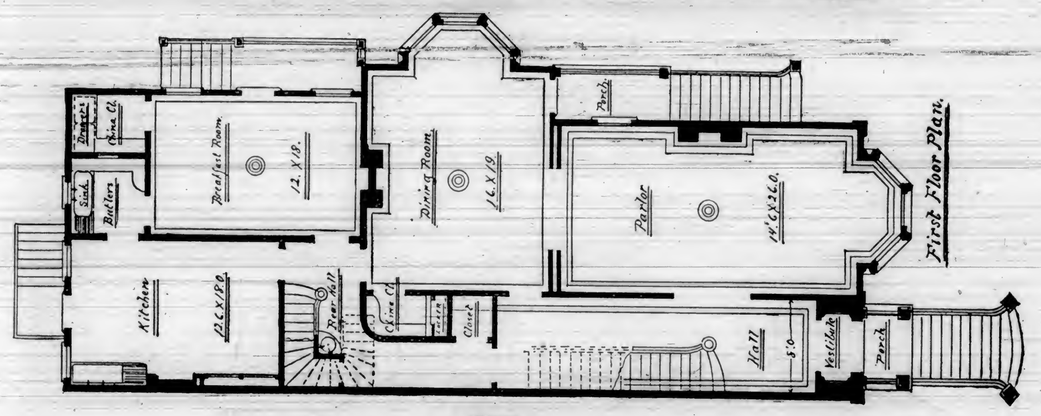
The Registrar-General, in the last quarterly report, gives an example of how a district may be improved by a proper system of sanitation. He instances the town of Llandudno, which at one time had a high death-rate, and which, of course, necessitated something being done to lower it. A scheme of sewerage was designed by Mr. Baldwin Latham, and carried out, at a cost of £30,000 with great success. The death-rate is now nominal, being only 8.4 per 1000, and during the three months in question not a single death from zymotic disease took place. In order to value the change which has occurred, we may point to the neighborhood of the town—the rural district outside which is not sewered—where the mortality was 38.6 per 1,000, with a zymotic death-rate of 4.3 per 1000. The Registrar gives great praise to the town for its enterprise, and when the new works for a water supply are completed, no doubt the death-rate will be further lowered.—*The London Metropolitan.*

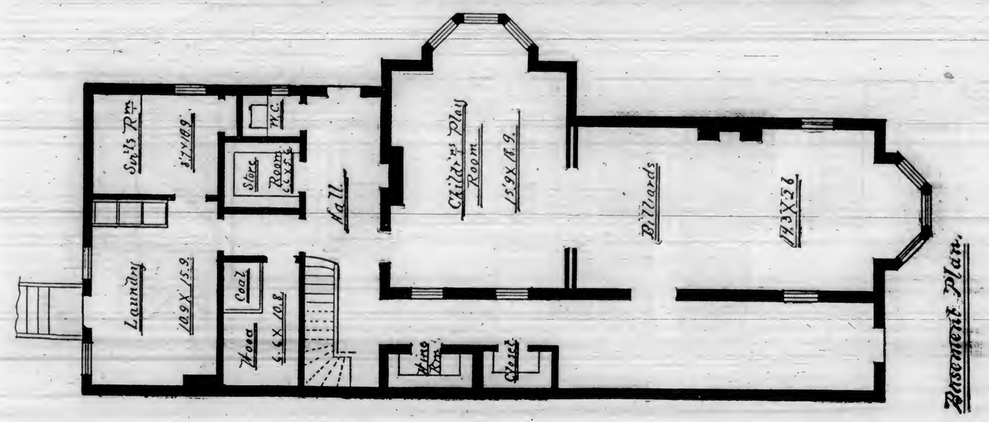
ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

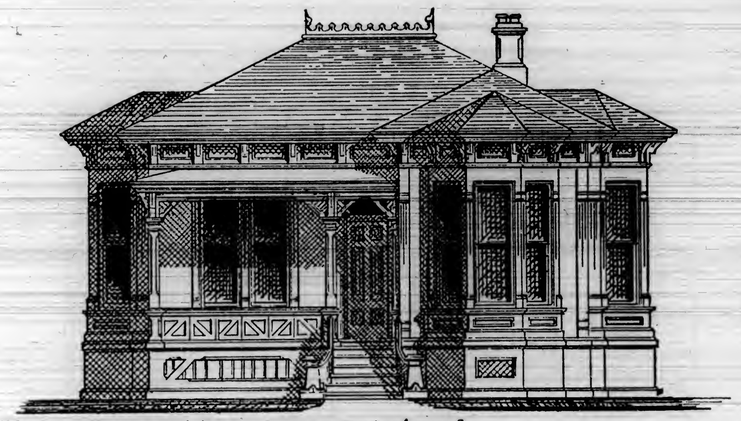


FRONT ELEVATION



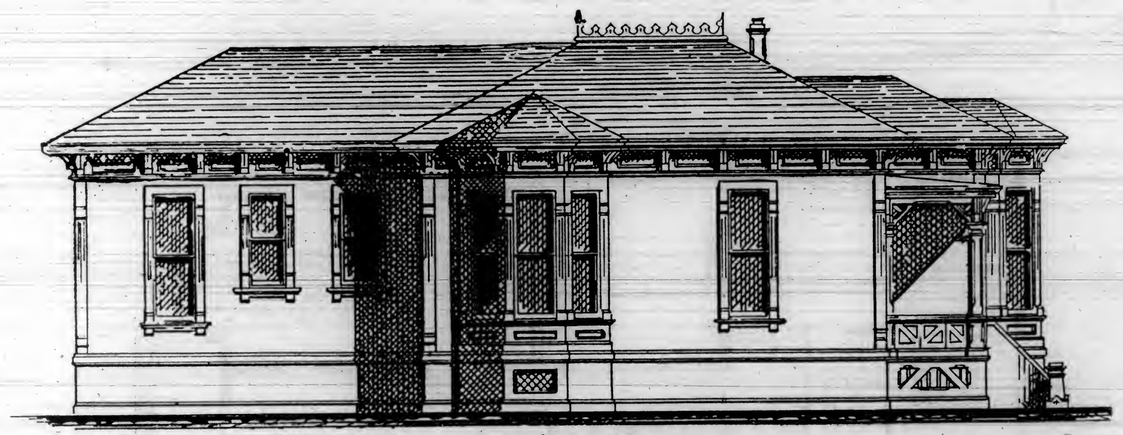




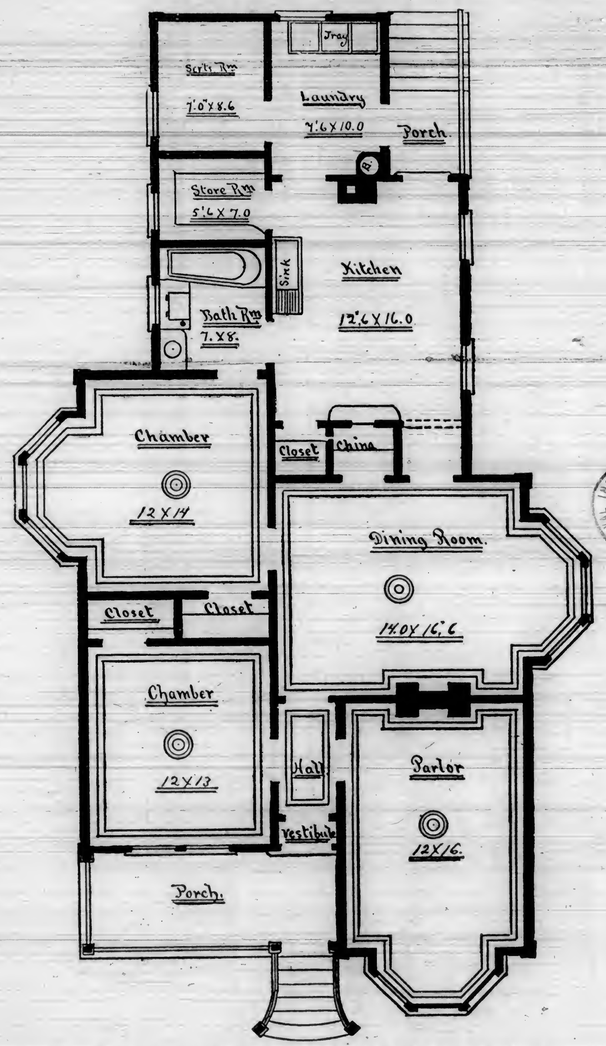


FRONT ELEVATION

ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

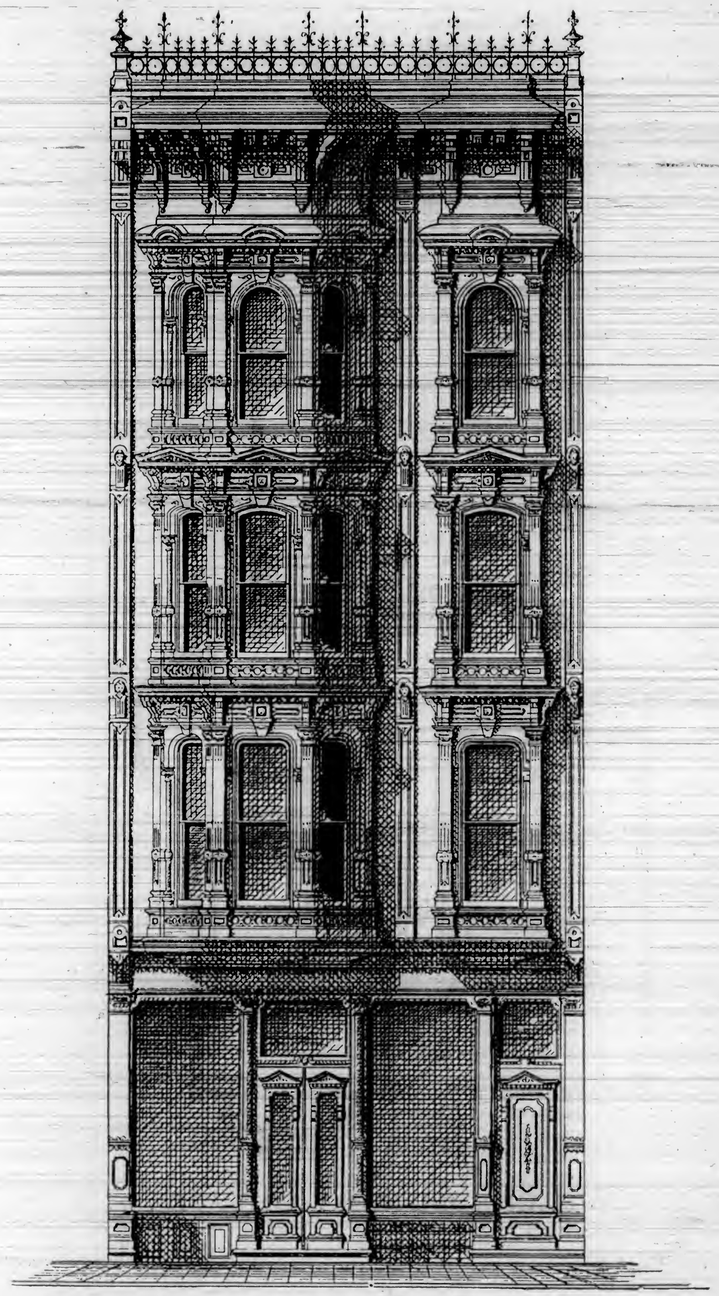


Side Elevation.



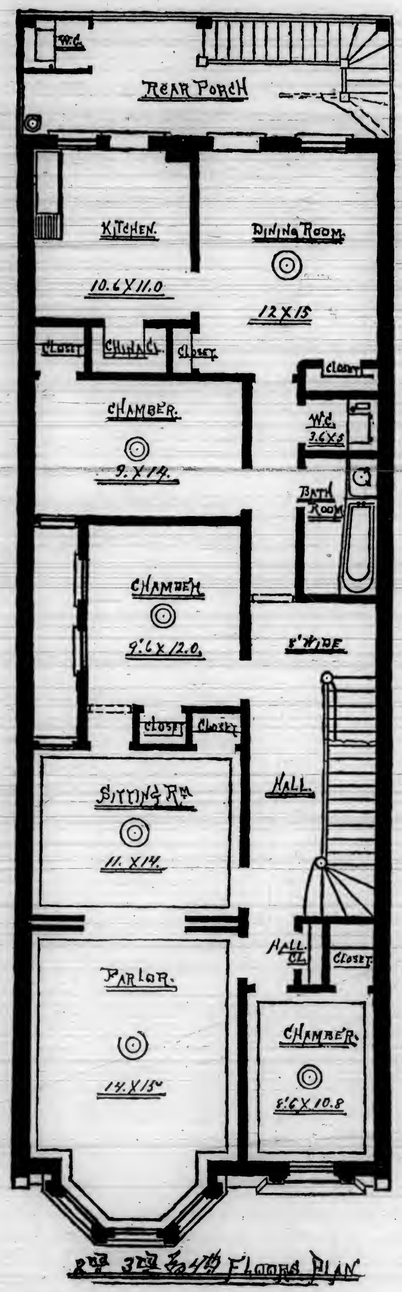
ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

FLOOR PLANS—ONE-STORY COTTAGE.



— Elevation – Store Front. —

Store Plan



2nd 3rd & 4th Floors Plan

ROYAL INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIV

Please Help Us a Little—Our Thanks.

We are obliged to our good friends and patrons for what they have thus far done, and hope that they will, each and all, still further render us all the assistance in their power, to increase our subscription list. The greater the encouragement received, the greater will be our financial ability and personal determination to make this journal complete and desirable. We want 10,000 *subscribers*, and should have them before the end of the year. We also thank the press of this city generally, and the scores of papers and journals from all parts of the coast, for their many very flattering, generous, and encouraging notices and commendations. It certainly affords great pleasure to receive such favorable notice and recognition from all quarters, and to realize that our effort to establish a "much-needed journal" in the face of the trying times and depressed business conditions which have so long prevailed in this city, has been successful. We modestly accept the gratifying verdict that we have "done well," but should have felt better satisfied, could we have accomplished all that we had determined upon, and still intend to effect, viz: make this a journal so complete, instructive, and valuable, that every citizen of San Francisco and the entire coast, having their best interests at heart, will not fail to subscribe for it. Each respective number since January 1st, 1880, is said to be an improvement upon the preceding issue; and we hope our patrons will find the present an improvement upon all that has preceded it. And if owners of property, to whom its contents are especially important—all architects, contractors, and builders, and a generous public generally, will render a helping hand in swelling our subscription list, we will continue and increase improvements, until a perfectness and completeness of the most gratifying character to all concerned will be reached.

Thank You.

If one-half the good wishes and kind congratulations verbally expressed toward this journal by business men generally, architects, contractors, material-men, and others, were reduced to written articles upon practical subjects, they would certainly afford pleasure, profit, and instruction to a great many people.

We thank friends for every word of encouragement extended, and will doubly thank those who furnish us instructive articles for publication. We will gladly yield a large portion of space to contributors and correspondents for the presentation of their views upon pertinent subjects, embracing anything in connection with home buildings, architecture, mechanism, the sciences, manufacturing interests of San Francisco and the Pacific Coast, sanitary matters, etc. There are times when almost every man's mind is just in proper condition to write up something good, something that would afford instruction to others, and not unfrequently an article appearing upon any given subject induces replies or elaborations from others, and the spring of thought tapped by one single pen often opens up a field of thought in others which ultimately encompasses interests, considerations, and questions of very great magnitude, from which great benefit is derived to those participating, and to thousands who are ever ready to receive instructions from sources outside of themselves.

The Morris Sash-Lock Manufacturing Company, Cincinnati, Ohio, have perfected and introduced an excellent burglar-proof sash fastening, which works without springs or any sort of intricate attachment liable to get out of order. They are recommended by a long list of architects from every section of the United States; in addition to which their self-evident simplicity and security furnish a sufficient recommendation to any one who will take the trouble to examine their merits as compared with other devices in the market for similar use and purpose. Samples can be seen at the office of this journal.

The attention of those who are "tired out" with hemp and other fibrous sash-cords is directed to the *Giant Sash-Chain*, a strong and lasting metallic device for hanging sash of any weight. Dunham, Carrigan & Co., 107 to 111 Front Street, are the agents.

To the Medical Fraternity.

During the present spring about 2,000 young men will receive diplomas as doctors of medicine and commence their professional career. As the object of *The Sanitary Engineer* is to diminish the demand for their services, it cannot expect that any advice which we may offer them will receive much attention; but in spite of that we have a word or two of counsel which they will do well to heed.

The public on which they are to depend for patronage is slowly but surely learning the truth of the old proverb, that "An ounce of prevention is worth a pound of cure," and is beginning to take an interest in public hygiene and in those who are endeavoring to promote it. The physician who sees this clearly and prepares himself to meet the demands of the educated classes for advice, as to how they may secure healthy homes, how the death rate of the village or city may be lowered, how the entrance of specific and contagious or infectious diseases may be prevented at the least cost and with the least interference with business, or how the spread of such diseases may be most promptly and effectually checked after they have gained admission—we say that the physician who is thus prepared will soon find an opportunity to use his knowledge, not only to the advantage of the community, but also to the benefit of his own reputation and practice.

If he does not understand the general principles of good house drainage, of sewerage, of methods of insuring pure water supply, of satisfactory ventilation—if he cannot tell whether his patient's bedroom contains the cause of his sore throat or deafness, whether the case of typhoid fever is due to the well or the milk-can—he will find that sooner or later he will be compelled to give place to those who have studied these things.

The family doctor always has the first opportunity to advise in the sanitary arrangements of his patient's house; but if he knows and cares nothing about it, the better class of his clients will soon find it out.

We advise the young doctor, therefore, to occupy a part of the many leisure hours which he will have in studying these subjects, learning what are now considered the best methods of dealing with sanitary problems, and in seeing how these methods may be improved. He will find in every number of this journal some fresh problem and some new answers, and if he can furnish better ones he may be sure they will meet with respectful attention.

In a very few years methodical instruction in hygiene will be given in every respectable medical college, for the simple reason that the demand for it will be so strong that it cannot be omitted. Those who are now graduating will do well to so study the subject that they will at least be on an equality with the graduates of ten years hence. Improvement in hygiene, public or private, does not do away with the necessity for physicians; it creates a demand for a more thoroughly educated class of medical men, and the supply will come with the demand.—*Sanitary Engineer, N. Y.*

In the St. Louis *Medical and Surgical Journal* for March 5th, the first paper on "The Influence of Foul Air," by J. E. Tefft, M. D., contains some curious statements. In one of the cells of the Greene County (Mo.) jail is a box made out of boiler iron, having a cubic capacity of 1,120 feet. In the door of this box, about five feet from the floor, is an opening, six by twelve inches. On the top are four slits, three inches wide. In one corner is a water closet. In this box there were confined, during the year 1875, never less than six and sometimes as many as twelve persons.

Dr. Tefft, the physician to the jail, states that he went before the court and explained the subject of ventilation, declaring it to be almost certain death to remain in such a place during the hot weather.

Nothing was done, however, and the doctor was much surprised to find that during that year and the next the health of the prisoners was excellent. There was not a case of fever, or diarrhœa, during those years, which originated in that cell. He treated in it a case of gunshot fracture, and the erysipelas and septicæmia, which he anticipated, did not occur, the wounds healing promptly. The cell is still in the same condition, except that a ventilating shaft has been carried from the top of the cell to the roof of the building.

Dr. Tefft thinks that this experiment has lasted long enough to demonstrate that something besides stink and foul air is necessary to make people sick. It seems to us that this case needs further investigation and more details before any positive conclusions are warranted. We would like to know how much air passed through the box in an hour, to have a reliable analysis of the air in the box, and to have the medical history of the persons who have been confined in it for the last seven years.

$20,000,000 Tax on White Labor.

The mechanical, laboring, and working classes of the United States can better afford to pay a tax of $20,000,000 annually to *christianize* (!) the Chinese in their own land, and as much more to help feed them, rather than permit them to enter the fields of labor in this country. For when, if ever, the employment of Chinese becomes general, destitution in its severest forms will fall upon the working people, for white men cannot subsist upon the prices paid for Mongolian labor, even as now ruling, and with an addition of ten to fourteen millions of the race on this continent, competition among themselves would follow, to the utter annihilation of white labor. Consequently the great questions in issue are simply these: Shall the working men of this country be driven to privation, want, and suffering through Chinese competition, or shall we protect our own people against the terrible calamity which Chinese competition will surely bring?

Prevention in this case will be wiser than to allow matters to run on loosely until a *cure* becomes necessary, for it is not always possible to effect cures when the cause of the evil or disease is permitted to become chronic and obstinate. This country is now groaning under and suffering from too excessive liberality of this character in other directions, and for which, if a cure is possible, it is difficult, and may require the sacrifice of human life and a flow of blood to remedy. The "great brotherhood of man" is all very well in poetry and song, and it is also good in practice where it has the effect of producing generous acts and noble deeds of charity to others of our race; but when its exercise jeopardizes the very existence of a great nation, it becomes a stupendous folly, and the people who permit it deserve all the punishment and distress that follows.

The March number of *The Medico-Literary Journal*, edited and managed by Mrs. M. P. Sawtelle, M. D., is before us, containing twenty-one pages of interesting and instructive articles upon health and sanitary matters, and "*the diffusion of a general knowledge of preventive medicines*," subjects upon which fathers and mothers cannot be too well informed; and if greater attention was paid by heads of families to the wholesome advice and instruction contained in journals of the character under notice, there would be less sickness in the home circle. The editress certainly manifests the opposite of a selfish disposition, by advising and instructing people how to prevent disease and preserve health, although "the more sickness the more work for doctors." It is published in San Francisco. Office, Thurlow Block, Kearny and Sutter Streets.

NEW BIOGRAPHICAL DICTIONARY.—Prominent among the valuable features of the New Edition of Webster's Unabridged Dictionary, just issued, is the "New Biographical Dictionary," comprising about 10,000 names of ancient and modern persons of renown, including many now living. It gives us the pronunciation of these names, the nationality, profession or occupation, date of birth, and if known, the date of death of each person. From its conciseness and accuracy it supplies a want long felt in this direction, and adds very greatly to the value of this always valuable work.

LAUGHING, AFTER A FASHION.—Two New Haven Republicans, *loq.*: "Well, Jones, this nomination of Greeley is one of the laughable incidents of the age. Easily defeated—don't you think so?" "I don't know," responded the other, slowly, "I feel like the man who offered to back his horse's speed against anything that carried four legs. When the day came, a man appeared with an ox, saddled and bridled, ready for the race. The owner of the horse looked bewildered, laughed, and finally declined the race. "Why didn't you run with the ox?" asked a bystander. "Well, to tell the truth," said he, "I didn't know what the devilish ox might do."—*N. H. Register.*

The San Francisco Evening Bulletin's Copyrighted Plans.

The display of plans for "cheap cottages," and the "estimate" of cost for same appearing in the *Evening Bulletin* of April 3rd, has been a subject of comment and criticism among architects and builders since their appearance. A purpose on the part of so influential a journal as the *Bulletin*, to produce a series of plans for buildings suited to the wants and pockets of persons of limited means, is certainly commendable, and we congratulate our neighbors upon having secured the services of an artist and architect of such marked abilities as they have *written up* for the gentleman engaged by them.

We do not question the motives nor deny the right of the *Bulletin* nor any other paper or journal to provide and publish plans and specifications for buildings, but we do object to volunteer statements or intimations not sustained by facts, or which are derived from sources either not well informed, or influenced by personal considerations calculated to create wrong impressions and lead to erroneous conclusions. We are led to these remarks by what appears in connection with the *Bulletin's* "first of a series of plans," etc., which reads as follows: "Architects, as a rule, discourage the drawing of plans for dwellings costing less than $2,000." If this were true, it would illustrate that architects, "as a rule," are governed by motives of extreme selfishness in seeking to dissuade from the lesser and advise the greater, for the purpose and with the intent of securing increased compensation and profits. Every act of mankind, "as a rule," even the publishing of a newspaper, and furnishing a "series of plans" through its columns, is influenced by a degree of selfishness, sometimes right and proper in character, and sometimes strained and overwrought; but we do not admit that this common and universal disposition is prominent among architects in any special degree. Speaking intelligently and knowingly, we deny that any such "rule" is in common practice in the profession, and if not, the statement should not have been made by our intelligent contemporary.

When clients desire plans, it is natural and proper that the architect consulted should suggest and recommend such improvements and additional investments as may to him appear advisable, and in failing to do so he would neglect a right and proper duty to the party desiring his services. But we question whether any gentleman in the profession would refuse or discourage the drawing of plans for buildings of any denomination, and, as far as "rules" are concerned, speaking advisedly and from experience, architects in many cases act the opposite of the statement made, and by moderation of charges for plans, *encourage* those whose means are limited; and in hundreds of instances architects in this city have furnished plans and drawings gratuitously to parties in humble circumstances; and almost every gentleman in the profession can relate instances where they have furnished plans and specifications at less expense to owners than the actual cost in cash to the architect of producing the same. Again, as far as architects are concerned, we know of this other fact, that architectural plagiarism—if the term properly applies—is common in this city. That after an architect has puzzled his brain, and from the resources of his experiences and studies, worked out and perfected peculiarly well-arranged and neat or beautiful plans and designs for a building of any character, there is generally some one or perhaps many who are so oblivious to a right conception of fairness as to copy and appropriate to their own use, without so much as saying "by your leave, sir," plans which may have cost their author a large amount of brain work to perfect, and which rightfully belongs to him. This system of "plan stealing" is entirely too frequent and common in this city. And to their shame be it said that owners possessed of considerable means and resources, as well as those who have "just enough to build with," are guilty of this dishonorable practice. And in numerous cases owners have been known to sell the plans used by them, to others; the result of which is to "beat" architects, and obtain the benefit of their experiences and knowledge with as little compensation to them as possible.

But for present purposes, further reference to the profession is unnecessary. There is a strong defense for it, as we shall endeavor to make appear, should occasion require. But as the *Bulletin* has furnished and published plans and specifications, which are stated to be *excellent* of their kind; and a review of things architectural as well as those which are not, yet are claimed to be, is one of the objects of this journal, we have the right to notice this "first of a series of plans and specifications," etc. We state, in all good feeling to the gentleman designing, and the enterprising journal publishing them, that it would be difficult to conceive a much less appropriate adaptation of plan to a lot of 20 feet frontage. The architect's explanation states that such a plan built upon a 20-foot lot, would provide "a comfortable passageway at the side of 4 feet." The way we figure it out is this: the building as shown is, at its widest section, 16 feet from out to out. Projecting over this, 2 feet on either side, are roof-cornices, making the spread of roof just 20 feet, thereby covering the full width of lot. Consequently, to erect the building in the prescribed limits, would leave an *uncomfortable* and useless passage-way of 2 feet at each side, instead of 4 feet on one side. To produce a different result would require the over-hanging of the cornice on one side 2 feet over the line of lot, a privilege not always granted by adjoining owners.

The construction of outside steps without balustrades or railings, or any sort of protection, is absurd; yet none are provided by the excellent plans before us. Economy being a principal feature in the case presented, the expensiveness of a hipped roof, with continuation of block gutters, modillion cornices, and panneled frieze around the entire building, exhibits extremely poor judgment. The cost of "mill-work" for roof-cornices alone will almost double the amount mentioned in the estimate as the total of cost for doors, windows, and mill-work for the entire building.

The "bed-room" is of passable size for two persons; but if there should be a child or two in the family, it would "crowd things" considerably. The living-room is of fair size—11x15 feet. The kitchen, 9 feet 6 inches by 11 feet, is very small for the purpose, as in this class of dwellings people eat and spend the greater part of their time in the kitchen. Its closet conveniences are good, but the provision made and the space designated for stairs, in case an additional story should be added, is extremely limited, and would compel the erection of "winding stairs," with high risers, which are never desirable when it is possible to avoid them. But the principal feature of error is in the estimate. The chimney is set down at $115. Its proper value is not more than $22.50. Placing its height at 30 feet, which is an excess, and its value at 75 cents per foot of height, we find the result stated. We will engage to have as many such chimneys erected at $25 each as may be offered. This slight error amounts to only $92.50. The doors, windows, and mill-work are set down at the ridiculously low figure of $40, while in fact, the main cornice of roof, measuring a girt at the edge of the gutters of 128 feet, would not be furnished by any mill for less than 60 cents per lineal foot, or a total of $76.80. The suggestion is presented, that a saving of $15 may be effected by the substitution of two single for two mullion windows. This fixes the value of each opening omitted at $7.50. With this as a basis of calculation, the openings remaining, with their outside and inside finishes, would be worth not less than $9, and counting the number shown—mullions included, they being part of the $40 estimate—we find seven window openings at $9 each, or a total of $63; $23 more than the value placed upon all mill-work, doors and windows. Then there is one front door, one rear door, and six inside doors, which with frames, casings, locks, hinges, etc., would be cheap enough at an average cost of $7 each, or a total of $56, to which add only $10 for sink, pot-closet doors, shelves and cleats for the same, outside steps, etc., and the result shows a total of $210.60, as a nearly, if not exactly correct value, instead of the absurd amount of $40 for all. And with even twenty-five per cent. deducted from the $210.60, the value of the mill-work doors and windows would be $157.95, or $117.95 more than the estimated cost. We suggest the propriety of some "man of small means" going ahead with the building shown, at the figures of the "estimate." Then let him find some millman, if he can, who will agree to furnish all mill-work, doors and windows for $40, reserving to himself the right to omit any portion of the work, at the allowance off stated by the *Bulletin's* architect. This being effected, then let said owner omit all the windows, and he will have a claim for cash, against the millman of $12.50, over and above the contract price of $40, and the millman would still have all cornice-work, doors, etc., to furnish. And if the omissions were continued at the same rate, and all doors and cornice-work omitted, the result would be that the owner would have a cash claim against the millman of several times the amount of the original contract of $40.

Our motive in noticing this matter in this way, is to expose the absurdities appearing in connection with this "first of a series," etc.; as nothing has so much tended to demoralize the architectural profession and the building business, as the promulgation of impracticable and erroneous ideas among owners.

It is somewhat amusing to read the article referred to, which in substance represents that the charge of $25 or $50 by architects, for a set of plans and specifications and superintending the erection of a small building, is excessive. While in fact a set of plans and specifications for which $25 is demanded, will cost an architect in coin, if the work is done by paid assistants, from $10 to $15; leaving a balance of $10 or $15 to compensate for the time occupied in visiting and superintending the work of construction for a period of sixty days, office rent, paper, etc., with comparative results in cases where the amount is $50. And further in substance, the *Bulletin* says: "Owing to these high (?) charges, owners decline the services of architects, preferring to save the $25 or $50." And with what result? The *Bulletin* answers: "*He* (the owner) *supervises the construction of the building himself, or trusts absolutely in the honesty of the contractor or day laborer whom he employs to do it. The alternative which presents itself, and which is frequently adopted, is to either draw plans himself, or accept the plans of the carpenter and builder who has been engaged to build the dwelling. In either case he usually finds that he has builded for himself a home wherein there has been much waste of materials, no economy of space, imperfect arrangement, and many omissions, making the house, which ought to be 'a thing of beauty and a joy forever,' an eyesore and an architectural abnormity.*" (The italics are ours.) The case is very well stated in the above quotation, and we add that owners who are too penurious to employ a competent architect deserve all that may befall them. If men prefer to waste their money in producing "architectural abnormities" rather than pay a fair compensation to men who, by their more perfected knowledge and experiences, would secure them "a thing of beauty and a joy forever," they have no cause of complaint, except at their own folly and penuriousness.

We leave it with our readers to decide from the accompanying showing, whether "*the greatest faith may be placed in the accuracy, economy, and architectural beauty and fitness*" of the "first of a series." The only originality of idea shown, is the adoption of so costly a cornice and roof and finish for an *inexpensive cottage*. The arrangement of rooms and entry-hall or "lobby," is familiar to all architects and builders of any considerable practice.

Carpenters' labor and nails are set down at $130. The ruling price for nails will average $7 per keg. To erect such a building properly will require not less than four kegs of nails, at a cost of $28, leaving $102 for the labor. We doubt whether two men could be found on this coast who would perform the labor in any sort of workmanlike manner within thirty days, working full ten hours per day. But if so, what would be the compensation for such labor? Just $1.70 per day for the labor of two *extraordinary* men, whose services, if they could be found, would be well worth $3.50 per day, if not $4.50, even at present rates of wages. But the fairer calculation would be three ordinary men thirty days each, which would give them $1.13⅓ per day; just 13⅓ cents per day more for mechanics than is paid by Mr. Bush for charity-laborers working at the Golden Gate Park!

No especial provision appears for outside steps, "finishing lumber," etc., etc. The plumbing and tin-work would be *exceedingly* cheap at $20, and according to all rules of figuring, "excavations, cess-pits, and drain-pipes," at $10, would be *emphatically* cheap. The drain-pipe alone, from the street-sewer in a street 68 feet wide, setting the house back ten feet from the street, and including the depth of building, 40 feet, would make 84 feet, which at 10 cents per foot would make $8.40, leaving $1.60 for cess-pit and excavations. But if the sewer-pipe should be calculated at a fair value, it would cost not less than 20 cents per foot for pipes and labor, or a total of $16.80, which for this single item would be $6.80 more than "cess-pit, excavations, and drain-pipes" are allowed by the estimate to cost.

Public Apathy about Hygiene.

Nothing is more discouraging to the benevolent physician than the apathy of the mass of people on these matters. Said a professor, while examining for his degree a student who showed lack of mental activity and great indifference: "I can stand your ignorance, but not your stupidity." One of the most eminent physicians in a neighboring State, during an epidemic of typhoid, carefully pointed out to the families he attended, while sick, the causes of their disease, and yet the great majority neglected to lift a finger to remove the cause, and would even try to deny the most obvious facts. Coming to treat a fatal case of typhoid, a physician went to the pump, examined the water, observed a putrescent odor therein; the well was examined, and a pailful of decayed earth worms was found to be the infecting cause which sent a vigorous young man to his premature grave. On the hills of Berkshire, in one of the most airy and apparently healthy localities, a family was suddenly prostrated with typhoid. Neighbors and friends that came to aid were suddenly seized by exposure, and the pest spread thoughout the town. The cause was found in infected water. A family on State Street in this city suddenly were infected, and no cause could be assigned, until inspection of the well found a quantity of bones with portions of decayed tissues thereon, which children had thrown in while at play.

In the hill towns and rural districts generally, typhoid and diphtheria prevail, as well as in the crowded city. The cause is always to be looked for in the careless sanitary habits of the people. The want of cleanliness and ventilation in the cellars, the decaying potatoes, apples, and cabbages, old rotten cider barrels, and soap and grease tubs, piles of filthy dirt—rags mingled with ashes on which rats and cats have nightly battles, the damp air, and oftentimes collections of water, and a temperature favorable to organic decomposition—all these are conditions prolific in the formation of infecting poisons, and for increasing the incomes of physicians. "I will not give you," said an applicant for vaccination, "a dollar for that service; it is not worth it!" "Then," replied the doctor, "you will give me fifty for attendance on you for small-pox." Soon after, the doctor indeed received within one dollar and a half of that amount, from the executor of a fool who died according to his folly. Prevention is cheaper as well as better than cure—or death. The medical profession receive more compensation for treating diseases than for their service in prevention. Let the public invert the order, co-operate with them in enforcing sanitary regulations, and public health and longevity will be better secured.—*Springfield Republican.*

Speculations as to the Lapse of Time.

Involved in producing the enormous changes that geologists have noted, have a special interest when applied to the antiquity of the human race. In this particular case, also, the probabilities of a serious error are incomparably smaller than in most speculations of a similar character, from the fact that the time that has elapsed since man made his appearance is, comparatively speaking, so trifling, that the evidence of his advent and existence are in many localities well preserved, and the sequence of natural changes not obliterated. Prof. Mudge has presented some interesting evidence relating to the antiquity of man, in the *Kansas City Review of Science.* He starts by assuming the correctness of the generally-accepted opinion among geologists, that man was on the earth at the close of the Glacial epoch, and presents evidence to prove that the antiquity of the race cannot be taken at less than 200,000 years. After the Glacial epoch, geologists have recognized, by their effects, three others, namely, the Champlain, the Terrace, and the Delta, all supposed to be of nearly equal length.

His argument for estimating the duration of these epochs is about as follows: He takes the case of the Delta of the Mississippi, and notes the fact that, for about 200 miles of this deposit, there are to be observed buried forests of large trees, one over the other, with interspaces of sand. Ten distinct forest growths of this nature have been observed, which must have succeeded one another. "These trees are the bald cypress of the Southern States. Some have been observed over 25 feet in diameter, and one contained 5700 annual rings. In some instances, these huge trees have grown over the stumps of others equally large, and such instances occur in all, or nearly all the ten forest beds." From these facts it is not assuming too much to estimate the antiquity of each of these forest growths at 10,000 years, or 100,000 years for the ten forests. This estimate would not take into account the interval of time—which doubtless was very considerable—that elapsed between the ending of one forest and the beginning of another. "Such evidence," concludes Prof. Mudge, "would be received in any court of law as sound and satisfactory. We do not see how such proof is to be discarded when applied to the antiquity of our race. There is satisfactory evidence that man lived in the Champlain epoch. But the Terrace epoch, or the greater part of it, intervenes between the Champlain and the Delta epochs, thus adding to my 100,000 years. If only as much time is given to both these epochs as to the Delta epoch, 200,000 years is the total result."

Our Illustration Plates.

We present in this issue of the REVIEW six plates illustrating elevations for a variety of buildings:

First.—The elevation and floor plans of a very handsome, moderate cost dwelling, containing a single parlor, 14 ft. 6 in. by 26 ft., adjoining which is a dining-room, 16 ft. 00 in. by 19 ft. 00 in., which may also be used as a second parlor when occasion may require. These connect by sliding doors. Connecting with the latter is a breakfast-room, 12 ft. 00 in. by 18 ft. 00 in., at the side of which is the kitchen, 12 ft. 6 in. by 18 ft. 00 in. The pantry and closet arrangements will explain themselves. On second floor there are, *first*, a chamber, 17 ft. 6 in. by 18 ft. 6 in., and an alcove, 8 ft. 00 in. by 8 ft. 00 in. Also four other chambers and bed-rooms, dressing-room, bath-room, and ample closet accommodations. The water-closet is separate from the bath-room. Such a building can be erected, with brick foundation, anywhere from $8,000 to any amount desired to be expended, according to elaborations and the introduction of costly or plain finishes. A cellar under the whole or part of the building will furnish ample space and opportunity for laundry, store-room, wine-room, and billiard-room if desired.

Second.—A four-story brick building, 25 ft. front, by a depth of 69 ft. The plans explain themselves, showing store on first floor, and parlors, chambers, bath-rooms, etc., on the floors above store, one floor being a duplicate of the others, subject to any change that might be desired by any one erecting such a building. Its cost, at present prices of materials, would not exceed $12,000, built in a good and substantial manner; but like all other building, expense can be materially varied by the introduction of more costly or cheaper materials and details.

Third.—Plan for a one-story cottage, containing rooms, closets, and conveniences as shown. We recommend them to careful consideration as very complete in their arrangements. It would be difficult to conceive anything more compact, and yet convenient, for one-story edifices. We have shown "hipped roof" elevations, with which the plan could be carried out at a cost of $2,200 to $3,000. A less costly elevation would abate the expense. In this and all plans shown in this journal when prices are named, the amount stated includes the buildings complete, less the range and gas-fixtures.

A SPLENDID CHURCH.—A Russian correspondent of *L'Art* gives some interesting particulars respecting the magnificent Church of Our Saviour, at Moscow, the first stone of which was laid by the Emperor Nicholas in 1839, and which is now approaching completion. The most precious materials, such as jasper, porphyry, and malachite, have been employed in the construction of this splendid edifice, as well as the richest mosaics and carvings. No fewer than twelve bronze doors, ornamented with statues of saints, open from the four *facades*, each door being thirty-six feet in height, and weighing 2,900 pounds; while around the walls of the entire church are sculptured a series of bas-reliefs, with figures more than six and a half feet in height. While the exterior glows with mosaic, rich stones, and gilded cupolas, the interior, lit by fifty-six large windows, vies with it in splendor, by means of innumerable paintings, covering the whole of the walls.

Tall Buildings.

The Cologne *Gazette* says: The two towers of our cathedral are now the highest buildings on the earth; they exceed by 1.50 metres the tower of St. Nicholas' Church, in Hamburg, which is 144.20 metres high. When completed, they will measure 160 metres, reckoning from the pavement of the cathedral cloisters, or 157 metres, reckoning from the floor of the church itself. The following are the heights of the most remarkable high buildings in the world: Towers of Cologne Cathedral, 160 metres, or 157 metres, (524 feet 11 inches, or 515 ft. 1 inch); tower of St. Nicholas', at Hamburg, 144.20 metres, (473 feet 1 inch); cupola of St. Peter's, Rome, 143 metres, (469 feet 2 inches); cathedral spire at Strasburg, 142 metres, (465 feet 11 inches); Pyramid of Cheops, 137 metres, (449 feet 5 inches); tower of St. Stephen's, in Vienna, 135.30 metres, (443 feet 10 inches); tower of St. Martin's, at Landshut, 132.50 metres, (434 feet 8 inches); cathedral spire at Freiburg, 125 metres, (410 feet 1 inch); cathedral of Antwerp, 132.40 metres, (404 feet 10 inches); cathedral of Florence, 119 metres, (390 feet 5 inches); St. Paul's, London, 111.30 metres, (365 feet 1 inch); ridge tiles of Cologne Cathedral, 109.80 metres, (360 feet 3 inches); cathedral tower at Magdeburg, 103.60 metres, (339 feet 11 inches); tower of the new Votive Church at Vienna, 96 metres, (314 feet 11 inches); tower of the Rathhaus, at Berlin, 88 metres, (288 feet 8 inches); towers of Notre Dame, at Paris, 71 metres, (232 feet 11 inches).

M. D. Conway writes: "The old darkness which, in the autumn season, used to envelop London, and which gas could not dispel, has yielded to the electric lights, which have long lit up several dense thoroughfares and the Thames Embankment, and illuminates Waterloo Bridge. The river is now gliding under bright daylight—the electric lamps burning at three pence the hour, are in frosted glass, which destroys only 35 per cent. of their brilliancy—and it is likely that the river boats will presently begin to run by night."

Market Report.

There are no changes in the prices of building materials worthy of note. The following report fairly represents the condition of the market:

OREGON PINE.			
Common Rough, up to 40 feet, per M feet			$18,00
"	40 to 50	" "	19 00
"	50 to 60	" "	20 00
"	60 to 70	" "	21 00
"	60 to 80	" "	22 00
Refuse Rough			14 00
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over, and Stepping		per M feet	26 00
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring		per M feet	27 50
Rough Clear for flooring, $1 less than above rates, per M feet.			
Second quality Flooring and Stepping, per M feet			21 00
Ship Plank, rough		per M feet	25 00
"	planed 1 side	"	28 00
"	planed 2 sides	"	30 00
Deck Plank, rough		"	28 00
"	dressed	"	32 50
Laths		per M	3 50
REDWOOD.			
Rough Merchantable		per M feet	$18 00
"	Refuse	"	14 00
Surface, No. 1		"	26 00
Surface, 1 x 8		"	25 00
"	1 x 6	"	24 00
"	No. 2	"	18 00
Rustic, No. 1		"	27 50
"	No. 2	"	22 50
"	short, 8 to 10 feet	"	20 00
"	" under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over		"	24 00
"	" 7 to 11 feet	"	22 50
"	" under 7 feet	"	18 00
"	No. 2	"	16 00
"	Beaded, 12 feet and over	"	26 00
"	" 7 to 11 feet	"	22 50
"	" under 7 feet	"	18 00
Half-inch Surface		"	25 00
Pickets, fancy		"	20 00
"	rough, pointed	"	14 00

Pickets, rough, square	per M feet	$14 00
Siding, ½-inch	"	20 00
Port Oxford White Cedar	per M feet	$30 00 to 45 00
Sugar Pine	"	30 00 to 50 00
R. W. sawed shingles	per M	2 00
Battens, ½-inch		75

HARDWARE AND NAILS.—Firmness of prices is maintained in the whole line, with an advance in nails over February quotations as appears by the following:

10 to 60 pennies, are quoted at		$6 50
8	"	6 75
6	"	7 00
5 and 4	"	7 25
4 and 5	" brad heads	8 25
6	"	8 00
8	"	7 75
10 and upward	"	7 50
3 penny fines	"	8 50

DOORS, SASHES, BLINDS, ETC., remain as last reported. No considerable activity in demand justifying a rise in prices, they remain as heretofore quoted, and current prices being so near cost of production, there is no room for abatement.

GLASS and PAINT materials remain about the same as reported last month.

Building Intelligence.

There is nothing of special interest to relate under this head, except it might be intensified dullness in San Francisco for the month of March. It is doubtful whether in the history of California so little work has offered, or so few contracts been let, as in the last preceding month, and this, too, in the face of the fact that there are a considerable number of property-owners who have the means, and would have commenced building operations had it not been for the disturbed and the uncertain state of things existing in San Francisco. The effect of "the great agitation" is in nothing more manifest than in the building interests. One of the daily papers of this city recently presented statements from architects and owners which fully established the fact that millions of dollars would have been thrown in circulation during the past two years through improvement of real estate, had it not been for political turmoils and the doings of certain designing men, who prefer to disturb, sacrifice, and suspend business operations rather than abandon their set purpose to secure the reins of government, by the handling and management of which they expect to secure political power and advancement for themselves, and fill their pockets with coin.

The "dear people," "the Chinese must go," the "oppressed tax-payers," the "suffering poor," etc., etc., are the strings upon which they play—themselves being the great players and performers. The cry of reform, retrenchment, and honesty in public office, so loudly and liberally proclaimed daily and nightly by the voicy men who have so long howled on sand-lots, in public halls, and debased and desecrated the sacred desk to the level of a political rostrum, finds its motive in selfish and personal purposes. It is not simply because stealings in public office have been practiced, that so many "honest reformers"(!) are to be found in San Francisco, but because scheming scalawags, who have hitherto been compelled through naturally disqualifying causes—social, moral, intellectual, educational, and otherwise—to observe and keep their proper place in society, and have not, but would like to enjoy the tempting opportunities appearing to them, of manipulating the affairs of our city and State governments, with their clean(!) and honest(!!) hands. Honesty is a virtue to be coveted, but a crowd of ranting human frauds is not the source of its supply. And a party or clique that welcomes to its fold every glib-tongued knave and tramp that comes to the surface, deserves the contempt and condemnation of every good citizen. Facts susceptible of clear proof show that many of the loudest declaimers of reform are men not only of low origin and character, but persons who have "floated around," connubiating devices for personal existence, and Micawber like, "waiting for something to turn up," and as they have supposed, discovering an opportunity in the agitation movements to better their condition, have joined hands with the strife-distributors. The few honest-meaning, intelligent men who have been ensnared into the delusion, present no redeeming feature. They are like the gold in a "poverty" or "worked-out" claim—so infinitesimal as compared with the amount of dirt to be removed, that it "won't pay to work the claim."

But the cheerful rays of light which broke in upon this city on Wednesday, March 30th, 1880, through the ballot-box, has caused a marked change in sentiment and feeling in all branches of mechanical and commercial business. Despondency and doubt yielded to cheerful hopes and brighter anticipations for the future; and it is with pleasure that we announce the fact, that within the twenty-four hours succeeding a knowledge of the result of the election, there was more talk indulged in, in reference to the purchase and sale of property, and the improvement of real estate, than had been during the preceeding sixty days; and we predict that with no at present unforescen intervening cause occurring to prevent it, there will be more stir in the architectural and building business within the next three months, than has been at any time during the past three years.

SAN FRANCISCO.

One two-story and basement frame building, Mission st., bet. 6th and 7th. Owner, S. P. Collins; architects, Curlett & Eisen; contractors, Terrill & Slaven. Cost, $5,650.

Two-story frame, Franklin st., near Ivy ave. Owner, Streser; architects, Curlett & Eisen; contractor ——. Cost, $2,000.

One-story frame, corner of Webster and Jackson sts. Owner, —— Simpson; architect, John Marquis; contractor, —— Langstein. Cost, $2,500.

Frame building and stable, Larkin st., bet. North Point and Beach sts. Owner, John Harrison; architect, H. D. Mitchell; contractor, W. A. Manning. Cost, $1,500.

Frame building, Pine st., bet. Fillmore and Webster. Architect, H. T. Bestor; contractors, Moore Bros. Cost, $4,000.

Frame cottage, Castro st., bet. Nineteenth and Twentieth sts. Owner, —— Dorkendorff; contractor, —— Warren. Cost, $1,000.

Frame building, State st., near Douglass st. Owner, —— E. Boman. Day's work. Cost, $1,500.

Alteration of building, Noe st., bet. Eighteenth and Nineteenth sts. Owner, Mrs. Grant. Day's work. Cost, $1,000.

Alteration of store, No. —— Market st. Fitting up for a restaurant. Owner of building, R. F. Osborn; improvements by Horst & Mathews; contractor, —— Scheerer. Cost, indefinite; perhaps $5,000, when completed.

One two-story frame, Bush st., bet. Gough and Octavia. Owner, Joseph Getz; architect, W. Mooser; contractor, A. Pare. Cost, $9,500.

Frame building, south-east corner of Franklin and O'Farrell sts, 30x75 feet. Owner, Mrs. Mary Badlam; architects, Wolfe & Son; carpenter-contractor, T. H. Day. Cost, not determined, as the contract let covers only the carpenter-work, and the owner doing a portion of the work on personal account.

Four-story building, cellar and main story brick, three-stories frame, 1035 Market st., bet. Sixth and Seventh sts. Owners, Westerfield & Page; architect, A. Schroeffer; contractors for brick-work, McGowan & Butler; carpenter-work, Bernard Dryer; Reese Llewelling, Columbia Foundry, iron-work. Stated cost, $15,000.

Enlargement of brick building, south-east cor. of Howard and Twenty-first sts. Owner, J. R. Sims; contractor for brick-work, McGowan & Butler; the rest of the work is being done by the day. Approximate cost, $2,500. This improvement will supply an additional hall at the Mission, with proscenium and stage, for lectures, balls, exhibitions, etc.

Brick building on Sumner st., near California Market. Owner, R. J. Tehav; architect, Hatherton; contractor, C. I. Burkes. Cost, $4,200.

Alteration of building, Leavenworth st. near Sutter st. Owner, W. Hoge; contractor, J. Martin. Cost with grading, $3,000.

Extensive alterations in store-story of building, south-west cor. Market and Fifth sts. Two of the small stores have been thrown into one. It will be occupied by Kennedy & Brennan as a dry-goods establishment. The cost of alterations and fixtures will be large. Amount not fully determined.

OAKLAND.

Three one-story frames, Fifteenth and Clay sts. Owner, ——; architects, Babson & Seadler; contractor, —— Ingerson. Cost, $4,830.

Frame building, two-story and Mansard roof, Orchard st., bet. Webster and Summit ave. Owner, Seth Richards; architects, Babson & Seadler; days' work. Cost, about $16,000.

Two frame buildings, East Oakland. Owner, Mrs. Langley; architects, S. & J. C. Newsom; contractors, Littlefield & Kendall. Cost, $7,000.

One twelve-room house, two stories, Lee ave., near Lake Merritt. Owner, J. Allman; architects, S. & J. C. Newsom; contractor, (for part) —— McCann. Cost, about $12,000.

ALAMEDA.

Frame building, Alameda and Grand sts. Owner, Seth Babson; architects, Babson & Seadler; contractors, Haskell & Smiley. Cost, $2,600.

Addition to building, Park st. Owner, S. Engle; carpenter-work, Brown & Cotton. Cost, from $300 to $400.

BERKELEY.

Frame building, Berkeley. Owner, J. S. Barker; architects, Meeker & Banks; contractor, C. R. Lord. Cost, $——.

STOCKTON.

Two-story frame, Mansard roof. Owner, Frank Stewart; architects, Curlett & Eisen; contractor, Jerry Robinson. Cost, $15,000.

CONTEMPLATED WORK.

There has been reported to this office as in contemplation, a considerable amount of work, both in this city and elsewhere. But desiring to avoid all statements not entirely in accord with facts, or any that would lead to false hopes, or erroneous conclusions, we will only add at present, that there are several intended improvements reported, upon which figures are being received; also, that several architects are preparing plans for new work, and a great many owners are talking about improving their real estate. The greater portion of the work talked of, is frame buildings for residence purposes, although some brick jobs are mentioned. The bids on a brick construction in Alameda, for the railroad company, have been opened; but up to the end of March the contract had not been awarded. The full facts of this case will be reported in our May issue.

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The California Architect and Building Review.

VOLUME I. NUMBER 5. } SAN FRANCISCO, MAY 1, 1880. { $1.50 per Annum in Advance. Single Copies, 15 Cents.

The California Architect

—— AND ——

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

Sent to any part of the U. S., postage paid, at $1.50 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

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Believing that a well and ably conducted journal, devoted to Architectural, Mechanical, Sanitary, Scientific, and other kindred matters and subjects, is a necessity in this city, and judging from what has appeared in the QUARTERLY ARCHITECTURAL REVIEW, published by Messrs. Wolfe & Burnham during the current year, both in illustration plates and reading contents, we are led to the belief that the CALIFORNIA ARCHITECT AND BUILDING REVIEW, proposed to be published by the San Francisco Architectural Publishing Company from and after January, 1880, will be worthy of general support and encouragement, and that it will supply a long-existing want on this coast. *We therefore pledge our cordial sympathies personally, and hope that the enterprise will receive kindly recognition and liberal support from all Architects and Builders on the Pacific Coast, and from the public generally.*

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Future Prospects.

They are encouraging and pleasing to contemplate. But after so long continued and disastrous a condition of things as has prevailed in this city in all departments of business enterprises, it is not reasonable to suppose that the debris of nearly three years of ruin, wrought by reckless and imprudent men, can be cleared away in a moment.

It requires time to rectify and correct great wrongs, and set the right in motion. It, therefore, demands the exercise of patience from those dependent upon the contingencies of business, until the natural channels again fill up with business necessities and opportunities. We, as a people, have stood by, witnessed the lifting of the floodgates by hands upon mischief intent, and the flowing out of the waters of prosperity, until the mill ceased to grind. Now that the gates are closed again, and the men who caused the stoppage scattered, the natural law of compensation will surely refill the emptied and drained dam, and in due time the great fly-wheel of enterprise will renew its whizzing revolutions and the grinding again begin; or rather, the grinding has already begun, and it is only a matter of brief time when the full powers of the entire human machinery of San Francisco will be in full blast, and every man who desires work find ready employment.

These conjectures are justified by what has transpired during the past month. The demand for, and purchase and sale of real estate; the starting up of work which has been long held back on account of unsettled conditions in political affairs; the cheerful and happy spirit which has manifested itself among all classes; the expressions of hopeful sentiments; the restoration of confidence in the future; the increased activity in many of the architects' offices, and the orders given for plans and specifications for new improvements, all add strength to the presumption that the too-long idle contractors and workmen will ere long have no further reason to complain of dull times. The hands and arms of the rude and rash men, who drove from its cot the dove of peace and business prosperity, having been paralyzed by the effectual blow administered by the hands of the people at the ballot-box, there is every reason to hope and believe that the affrighted bird will soon return with the olive branch of assurance and hope that brighter and better days are about to dawn upon us.

And here we offer a word of advice. We say to those who are compelled to toil for their daily bread, treasure up the lessons of experience taught by the privations of the recent past; take care of the hard earnings which may be reaped. Necessity in thousands of cases has enforced extreme economies, and whole families have been compelled to subsist upon very insignificant amounts. Now, in the return of properous times and steady employment for all—if volunteer economies are practiced, not to the stinting and almost suffering degree of the past, but reasonable, prudent economies, which forbid waste and unnecessary expenditures, it will place our laboring classes in a condition, that should reverses again overtake them in life, they will be better prepared to meet them. And the same advice will apply to those who employ their time in more speculative ventures. The greater portion of men's mishaps and failures grow out of extravagant living; rushing the present fully up to, or beyond its limits, reserving nothing to meet future possibilities. Men of great wealth may indulge with impunity in luxuries, and gratify every caprice and device of their nature; but it is not wise in those whose fortunes remain within the wheels of chance, to seek the enjoyment of those luxurious pleasures which involve outlays and greater expenditure than the certain returns of business will justify.

A WORTHY old lady offers the following advice to girls: "Whenever a fellow pops the question, don't blush, and stare at your foot. Just throw your arms around his neck, look him full in the face, and commence talking about the furniture."

Art in a Cottage.

The mission of art to the cottage is one of exaltation, of refinement, of far-reaching enfranchisement; it is to open the doors of the kingdom of knowledge, to touch fresh springs of sensibility; to place the humblest soul in its right relations to the universe. The true artist would rather be what David and Bunyan and Shakespeare are to the cottage, as the type of what is the humblest and lowliest amongst us, than find himself the secret joy of a bibliomaniac, the priceless treasure of a Medici, the awful *sacrosanctus* visible only to monk or nun. Art is no cabala, no esotery, intended only for a class, a caste; its magic and its mystery are keys to the inner room of every human spirit, though the doors be rarely opened and the rooms themselves be unswept and ungarnished. The mission room from the cottage, too, is always wanted, and wanted as much in the palace as anywhere else. "Paint us as an angel, if you can, with a floating violet robe, and a face paled by the celestial light," writes George Eliot, in "Adam Bede"; "paint us yet often a Madonna, turning her mild face upwards, and opening her arms to welcome the Divine glory; but do not impose on us any æsthetic rules which shall banish from the region of art those old women scraping carrots with their work-worn hands; those heavy clowns taking holiday in a dingy pot-house; those rounded backs and stupid weather-beaten faces that have bent over their spades and done the rough work of the world; those homes with their tin pans, their brown pitchers, their rough curs, and their cluster of fine onions. In this world there are so many of these common, coarse people, who have no picturesque, sentimental wretchedness. It is so necessary we should remember their existence, else we may happen to leave them quite out of our religion and philosophy, and frame lofty theories which only fit a world of extremes. Therefore, let art always remind us of them; therefore, let us always have men ready to give the loving pains of a life to the faithful representation of common-place things—men who see beauty in these common-place things, and delight in showing how kindly the light of Heaven falls on them." There is beauty in the sea-ringed island of ours, as well as in the sunnier lands; in English heaths and hills, as well as in Swiss mountains and Italian farms; in heavy-featured, somber-clad laborers, as well as in the ribboned brigands and ragged lazzaroni. There is as ample a poetry of suggestion in a cottage arm-chair as in a curule throne; and the tragedy which plays itself out in the life of labor and homely retirement, is as full of romance as are the metaphysics of crime or the ecstacies of the saints. It is perhaps less to be caught by pure literary excogitations, and hence it is less attractive and less easy to discover. It cannot be gathered up into intellectual power by much dwelling in the studio, by ostentatious fidgeting along the beaten tracks of art. The novel, in short, is competing with other forms of art in this double mission; but pencil, chisel, and brush must not accept the ostracism or the petalism the pen would thrust upon them. Pre-Raphaelitism has done much to increase our regard for minute and honest workmanship, but there is yet needed a dash of Dutch simplicity without its coarseness, a revival of the broad, human, tender spirit which would make the artist as tremulous to life in a cottage as if its inmates were kings and queens in disguise, sheltering from the troubles which are passed, waiting for the reverential greeting and the royal raiments which are near.—*E. Goadby, in the Art Journal.*

There is a woman in Wisconsin who has been married fifty-eight years, and who has never missed building the kitchen fire. Her husband is probably the oldest fire escape on record.—*Ex.*

Work was begun on Col. Waring's plan of sewerage at Memphis, January 21st, with considerable ceremony. Many prominent citizens were present, and Dr. Porter dug the first spadeful of earth.

Those Dangerous Scientists.

The *New York Herald*, in its usual sardonic style, makes the following remarks in regard to the danger to which science exposes the modern condition of this world in a religious as well as in a secular aspect. We reprint it for the sake of a few well-deserved hits. Says the *Herald:* "Modern science has its advantages and disadvantages. It is all very well to tell the sun that he need n't trouble himself to rise any more, because we can light up the world with electricity; but when it comes to the use of the telephone in such a way that the Christian ministry is in danger of abolition, the matter becomes serious. In Lowell, the telephone is attached to a certain pulpit and then carried into the houses of the parishioners, who sit in their easy-chairs or puff away at the friendly cigar, while the voice of the preacher resounds through the room. If this thing is carried much further, Othello's occupation is gone. Dr. Storrs can be hired to preach to the entire continent. Sitting in his study, he can deliver a discourse to a large bundle of wires connecting with every house this side of the Rocky Mountains, and the rest of the ministers will have to engage in some honest but respectable employment. However, there would be a compensation for even that misfortune, for Dr. Talmage would have no use for the clerical trapeze, and even Dr. Fulton would be compelled to be civil. These two advantages would make the world seem brigher, and we are almost inclined to hope that Mr. Edison may complete his invention."—*Scientific Canadian.*

Defective Chimneys and Flues.

Many millions of dollars' worth of property has in time been reduced to ashes, and thousands of human lives sacrificed by fires originating from defective flues. Still, these facts fail to arrest any special attention, and thousands of chimneys are built every year in this and other cities with the same defects which have resulted in conflagrations, and so often caused destruction of property and loss of life. There is no necessity for this dangerous condition of things in this connection. Chimneys and flues are indispensable, at least in dwelling-houses, and if not properly built, they are dangerous to the safety of buildings from fire. Too generally they are built of soft salmon bricks and bats, by men who are "chimney-builders," *i. e.*, men of inferior qualifications as mechanics in the more comprehensive senses, and who possess but a limited understanding of the principles and necessities involved in chimney-building. The bricks should be of good quality, laid in good mortar, with every joint and interstice well and carefully filled, so as not to permit a hole of any size in any part of the work. The inside of the flues should be well pargeted or plastered; and to render security complete, the small additional expense of plastering the outside of every stack, particularly the back, is fully justified by the advantages gained. Too much care cannot be practiced in having flues smooth and of equal capacity from bottom to top; for when "choked"—made smaller in some parts than in others—the draft is never perfect, and a "smoky house" is classed with a "scolding wife" as one of the most disagreeable things on earth. Very often the foundations are not sufficiently large nor solid to secure good results, and prevent settling and cracking. Architects who have had opportunity to examine the backs of chimneys, after they have been used for a time, have seen their dangerous character illustrated. In one case coming under our special notice, where the siding had been removed from the wall, no less than thirteen holes and badly-filled joints were discovered, through which the smoke had percolated—some of them large enough to admit a large size walking-cane. Had the flues in that case taken fire, instead of "burning out," it would in all probability have caused the partial, if not entire destruction of the building.

Chimneys are sometimes poorly built, because their erection is undertaken at a low figure, and the builder erects them according to price, not caring anything for consequences; sometimes by men who could not execute a fair, much less a really good job of chimney-work, if paid the weight of every brick in gold for their work. And sometimes chimneys are improperly built in the spirit of ugliness, and defects intentionally incorporated in their construction, particularly if the architect happens to find fault or criticize the character of the work done. In all fairness, considering the value of good chimneys, and the dangers inminent from defective flues, great care should be practiced in all cases.

And the Good Wife said,

In tones and accents gentle and persuasive: Nathan, dear, when do you intend to secure a lot, and build us a home?

Husband. My dear wife, I have thought of the matter, but really I do not see my way sufficiently clear to make the venture, yet awhile.

Wife. But you have been *thinking* the matter over for a long while, and promising practical attention at an early day, but seemingly that early day is as far distant as ever. And if you continue *thinking* and *do* nothing, we will never have a home of our own.

Husband. True, dearest; but I must be sure that I can carry the load, before I make the attempt to shoulder it.

Wife. Very right; but the best way to determine your strength, is to measure it with the load itself. Merely *looking* at a difficulty never overcomes it. You *imagine* that you cannot, and so long as your mind runs solely upon lines contemplative and imaginative, we will have no home of our own.

Husband. My dear Emma; are you not straining your nerves in an effort to persuade me to go beyond my means, and undertake the purchase of a lot, and the erection of a home.

Wife. My dear Nathan; do not worry about my nervous condition. My nerves are all right; but if you want to strengthen them, promise me now, that you will at once take this matter in hand, and as soon as possible, accomplish it.

Husband. That is very well said; but I am afraid to promise too much, until I see my way perfectly clear. But tell me: Why are you so in earnest about this matter, just now?

Wife. I will tell you. Life and its prosperities and fortunes are very uncertain, and none of us knows when or at what moment the merciless hand of reverses or misfortunes may fall upon us. You are prosperous now, and by a little extra effort, you may secure for your family and yourself a home, which none can take from us, even should the tide of prosperity leave you stranded upon the shores of business adversity.

Husband. That is all true, but at the same time it is best to be cautious.

Wife. Yes. But have you no faith to believe?

Husband. Believe what?

Wife. That you have judgment, determination, and energy sufficient to accomplish the task, if you so determine.

Husband. That is a question.

Wife. Not with me. For while it may to some extent task your business energies and resources, it will only be for a time, and when that time shall have passed, the pleasure and happiness that we will enjoy in our own home, will more than compensate for all the extra exertions and privations endured in accomplishing the result.

Husband. That may be, but I—

Wife. Now dear hubby, just you begin to think a little on the *do* side of the question, and one-half of the difficulties, real or imaginary, will disappear. All your thinking, thus far, has been on the *wait-a-while* side, and so long as you continue on that line, nothing will be done.

Husband. Yes; but we must not run ahead of Providence. In due time all these good things will come, if we only wait and trust.

Wife. Yes; but does not Providence sometimes make it possible for us to accomplish certain things, expecting us to do our own part like men and women; and then because we fail to *do* for ourselves when the opportunities are presented, retires, impatient at our want of appreciation and lack of energy to accept the proffered good?

Husband. It may be so. There is, doubtless, some truth in the old maxim or adage, that "Providence helps those who help themselves."

Wife. A great deal of truth. Providence never buys lots for us, nor builds us houses, but his kind hand often places within our reach the means whereby we may secure these things. And often men in their folly waste and misuse the blessings and favors of a kind Providence, and then cry out in despair because, as they view it, they are or have been so slightly blessed with earthly good.

Husband. Emma, you talk like a philosopher; but we will postpone further discussion of the subject-matter, until I have time to mature my course of action.

Wife. But you will promise to consider it from the *do if possible* stand-point?

Husband. Trust me. I will promise nothing rashly, but the arguments you have used shall receceive due consideration. I will see what I can do.

Wife. The last word you have uttered is the one of all others, I have desired to hear—*do*. That in exercise by you, and all will be well.

Where the Cold Waves Come From.

Meteorological observations have now become so extended that evidence is rapidly accumulating to enable us to determine positively the source of the cold aerial waves which sweep across our country during the winter season. The indications are that we owe them to the great area of high barometer in northeastern Siberia, where the pressure sometimes exceeds 31.50 inches, and the temperature falls as low as 76 degrees below zero. The pole of greatest cold is in the neighborhood of Yokutsk, on the Lena, where the average thermometric reading in January is 41 degrees below zero, and where the severest cold exceeds by 10 degrees that experienced by explorers in high Arctic regions. This is also the region of the highest barometric pressure known in winter; and from it, doubtless, proceed the waves of intense cold which play so large a part in our winter experiences.—*Scientific Canadian.*

The Earth's Day Increasing.

In a recent lecture on "Eclipse Problems," Prof. Charles A. Young, of Princeton, said, with reference to the observed increase in the rapidity of the moon's motion, that the discovery led at first to the opinion the moon's orbit was growing shorter, and that ultimately the moon would come down upon us. More accurate calculation shows, that there is no danger of so disastrous a result. The moon is not coming nearer, but our day is growing longer, owing to the friction of the tides upon the earth's surface. The tides act like a brake, and slowly diminish the speed of the earth's rotation.

Action of Ammonia on Brass.

John Y. McLellan, of Glasgow, writes to the *Chemical News* as follows: "While experimenting on the action of liquor ammonia on various metals and alloys, with a view to determine the most suitable for the contraction of a certain part in an ammonia plant, I have met with a reaction on brass, which, so far as I know, has not before been recorded, and of which this note is a preliminary notice. If a small piece of brass or a few brass turnings be covered with liquor ammonia, specific gravity 0.880, in a closely-fitting stoppered bottle, and placed aside for a few days, it will be found that the ammonia has acted on the copper of the brass to such an extent as to produce a solution of a more or less characteristic violet color, due to the presence of oxide of copper held in solution by ammonia. If this solution be still allowed to remain undisturbed for a few days longer, free from contact with the air, this violet color will gradually disappear, leaving a colorless solution, which, however, is no sooner brought into contact with the air by removing the stopper than the violet color is reproduced, and by again stopping the bottle and leaving it aside the same reaction occurs, and may be produced over and over again. The production of a violet color from a colorless solution on exposure to the air does not seem to be the result of oxidation, as on opening the bottle in an atmosphere of carbonic acid the same reaction takes place. I am at present working up this subject, in the hope of finding in what state this colorless solution of copper exists."

CANVASSERS.—Reliable, industrious, and competent parties to canvass for this journal wanted in every city and town on this coast. Good inducements offered.

Homes—Semi-Hospitals.

Too much cannot be written or printed, to impress the conviction upon the minds of owners and tenants of houses, that the preservation of their own and their children's health depends largely upon the manner of the construction and the appointments of their dwelling-places. There is no speculation in the statement that thousands of cases of sickness occur from defects in these connections.

It is a well-assured fact, that if every building in this city was subjected to an examination by a board of competent medical and scientific gentlemen, who would enter fully into the work, and furnish a full statement of the sanitary conditions, as discovered by them, a very large number, if not more than one-half, the buildings in San Francisco would be pronounced unhealthful, and many of them as mere disease-breeding habitations.

Scores of families occupy places of residence which are good in appearance, convenient in arrangement, and free from visibly-bad surroundings; but, "somehow or other," some one or more of the members are always complaining, and the doctor's services nearly constantly in demand. Sometimes people remove from certain localities, and denounce them as unhealthful, while in fact, the conclusion reached may be entirely erroneous. It matters not how elevated and splendidly located a building may be, if the building itself is not properly constructed, and its appointments of sewer, pipe, and plumbing-work perfect, healthfulness is out of the question.

These facts are beyond dispute or doubt, and have so often been related, that every owner and occupant of buildings should regard them with deep interest and concern. But a peculiar indifference seems to prevail among those most seriously affected, and but little notice is taken of the most startling and authentic statements made, although health and life are involved in the issue.

There is no architect or plumber of any considerable practice or experience, who has not been called in, or had occasion to visit buildings, where the strong smell of sewer-gas has been plainly discernible in almost every apartment under the roof. Perhaps the foul-air leakage may have been in connection with the pipes in the bath-room, kitchen, water-closet, or some particular wash-basin; but the poisonous vapor being once introduced within the walls of the building, it finds its way, by its equalizing and permeating forces, into the common atmosphere of the edifice. Sometimes the offensive smell is so great, that carbolic acid, chlorides, etc., are used as neutralizing and counteracting agencies; but such remedies are like placing the lion's skin upon the ass; the skin may cover the carcass, but never changes the nature of the beast.

Hence the great necessity on the part of owners, to exercise the utmost caution, and to some extent, at least, consider the advantages to be secured by employing the most skillful and competent architect, and the most qualified mechanics in all the branches of mechanism, as economies in this connection seldom compensate for the serious consequences which attend the opposite course.

California Bricks.

In the early days of California it was generally supposed that there was no clay to be found in this State of which good bricks could be made. In the years 1853-4, the firm of Adams, Smiley & Co. had large contracts with the general government—the present post-office building, and others—and we recollect that Mr. Adams of that firm made a circuit through a large portion of the counties surrounding the Bay of San Francisco, San Pablo, Suisun, Sacramento River, etc., and returned with the report that there was no clay to be found anywhere suitable for the manufacture of bricks, and this induced that gentleman and his co-operators to abandon a then contemplated project of establishing the industry of brick-making. Since then, however, hundreds of millions of brick have been manufactured within the limits of San Francisco County, of clay material considerably intermixed with adobe soil, yet producing very fair brick. In addition to these, Sacramento City and County, San Jose, Marin County, and other places have each and all poured their millions of good brick into San Francisco, and hundreds of substantial buildings have been erected of bricks made from clay found in places where in "early times" it was supposed there was none fit for brick-making.

"Hard on Contractors."

This is an accusation made against all architects who are "*too particular*"—who from a *strict sense of duty* may require the fulfillment of contracts, and no more. Many men who figure on plans, *calculate on the chances*. They figure on how much they can save by avoiding certain requirements of the specifications, and the omission of things clearly intended by the plans, and with this motive and intent in view, figure low to secure a contract. And when the architect demands and insists that his plans and specifications shall be followed and carried out, offense is taken, and the architect must either sacrifice the owner's interests, or secure the displeasure of the contractor, sometimes amounting to positive and bitter enmity. Four-fifths of the revilings against architects grow out of this one cause, and we risk the assertion, that if architects could always obtain a fair hearing, their explanation as a rule, would verify this fact. But offended contractors have it all their own way in circulating derogatory statements in reference to architects, and the architect persecuted has no remedy, for the work of slander is carried on in his absence, and beyond the reach of his explanation or denial. We speak feelingly and knowingly upon this point, having been subjected to more than a fair or merited proportion of misrepresentations.

This condition of things does not occur with good and true men who understand their business, and expect always to fulfill the obligations assumed by them; but with the class first mentioned, who fortify themselves behind the bulwark of secrecy, as far as the possibility of contradiction is concerned. Architects cannot follow mischievously minded men to discover their acts and sayings, and their statements remain unchallenged. There may be instances in which some severity may have been practiced, but such are not the rule, but the exceptions.

Another cause of misunderstanding frequently arises from contractors figuring hastily and jumping at conclusions—sometimes from estimating by some cube or square rule, which gives an uncertain result; and sometimes from ascertaining the sum of some fellow-bidder's estimate, and being governed by it. All these practices are wrong and defective. Two buildings may cube the same by rule, yet one may be worth fifty to one hundred per cent. more than the other, and no man is sufficiently skilled in the rule to be able to apply it to different classes of buildings with any degree of certainty. But it matters not what may lead to error in a contractor's estimate, the architect is looked to to help him out, if not altogether, still to a large extent. And if he fails to do so, he is almost certain to suffer abuse.

But there is a second side to this picture. Perfection is not the masterpiece of the profession. Architects are but human, and like all others of the human race, may err. And when they do so, it is but just that they assume the responsibility of their own mistakes. But when plans and specifications are full and complete, it is unjust toward the architect that he should be denounced as a "hard man," simply because he will not permit evasions and departure from the written and prepared documents and papers.

Mystery in Mechanics.

The Boston *Journal of Commerce* justly observes that there is a class of mechanics who affect great mystery about their work, and appear to imagine they can convey the impression that there is something occult or hidden in the processes they use and the materials they employ. Inventors are peculiarly sensitive about making known what they intend to do or the way they intend to do it, as though the world stood agape, ready to wonder and admire as soon as the letters patent are issued. Perpetual motion mongers are justified in keeping secret their experiments—they usually keep secret the result. But in nine cases out of ten the inventor could obtain the money assistance he requires simply by trusting his proposed improvement in detail to judicious friends, and he might with safety and advantage take a brother mechanic into his confidence.

A short time ago a carpenter, in assisting to move some heavy machinery, had occasion to go into a room where the soldering of preserving cans was being done. He wanted to bore a hole through the floor through which to pass an eyebolt. He was refused admission until he solemnly promised not to notice the work which, with some handy appliances, was performed very rapidly. A visitor at a white lead manufactory was refused admission to a room where the pig lead was cast into sheets previous to being acted on by the acid. Yet there is absolutely no secret in it. The melted lead was simply thrown in small quantities on a sort of shovel of sheet iron, where it congealed to a thin film. The worsted braid used largely for the trimming of ladies' dresses a few years ago is as smooth as silk, without fuzziness, although the yarn is full of projecting fuzz. A certain company kept its process a great secret, but an examination of the braid under the microscope showed it was simply singed. Some temperers of steel profess a great secret in the preparation of their hardening-pickle, a secret as patent as though described on a page.

There are very few manipulations or manufacturing processes which are truly secrets, and in many of these cases the secret consists in the quality of the material used, and a material perhaps not readily obtainable otherwheres. If a secret process involves much mental calculation or expertness of handling, a chance visitor must have rare observing faculties if he can carry it away with him and reproduce it at will from memory. The laws of the science of mechanics are open to all investigators, and what one man has learned of them may be learned by another man. It is an absurd and ridiculous pretension generally that assumes that one man knows alone what many are anxious to learn, that the finished article carries no suggestion of the processes through which it has passed, and that on one man's will and life depends the success of some important manufacture.

Cements, Mastics, and Concretes.

Many of our readers have occasion to use cements or mastics, especially in putting-down cellar floors or making old walls tight. They will find the following hints upon the subject valuable:

A cement of one part sand, two parts ashes, and three parts clay, mixed with oil, makes a very hard and durable substance like stone, and is said to resist the weather almost as well as marble.

Damp brick walls are common, especially in houses in the country where they are exposed upon the north and east sides. So common is this, that in many places in the country a strong prejudice exists against brick houses on account of their dampness. Last year a gentleman having a brick house exposed on all sides, and suffering from dampness in the kitchen, which was in a wing upon the most exposed side, tried an experiment which has proved very satisfactory. A barrel of the best English Portland cement was purchased, and a common tin wash-basin used for mixing it. The cement was mixed with water until about the consistency of cream, and applied thickly with a large paint brush. Of course the mixture had to be constantly stirred to prevent the cement from settling to the bottom; and on account of its very rapid settling it could only be mixed in very small quantities—half a gallon being about as large a quantity as can be readily handled at a time. When first dried it seemed somewhat of a failure, because it could be so easily brushed off, but after it had had twenty-four hours to harden it formed a strong and durable coating. The color is a neutral tint, something like Ohio stone. This coating kept the wall perfectly dry, and as it is inexpensive and does not require skilled labor in its application, ought to be extensively used. The gentleman who put on the cement suggests that a damp, foggy, or misty day is best for its application. The coating should be brushed into all the crevices and openings of the work, and it may be found desirable to apply two coats in order that all the openings may be completely closed.

Cement is much stronger than mortar, and can be used to great advantage in many places instead of lime, even in the face of the fact that it is much more costly than the latter. The usual proportions are one part of hydraulic lime to five parts sand. In pointing the proportion is sometimes as low as three parts sand to one of hydraulic lime or cement. Coarse

clean sand—almost pebbles—can be used to the extent of three parts to one of cement. Some recommend mortar, to be allowed to set and then wet and worked again. This course will not answer with cement, which is generally injured by such a method of working. The greatest enemy of both mortar and cement is frost; the power with which the water expands at the freezing point is practically unlimited, and where it penetrates into the crevices and pores of mortar and freezes, or when wet mortar is allowed to freeze, its strength is destroyed.

For making floors the following method is said to produce very desirable results: Four parts of coarse gravel or broken stone and sand, and one part each of lime and cement, are mixed in a shallow box, and well shoveled over from end to end. The sand, gravel and cement are mixed together dry; the lime is slaked separately and mixed with just enough mortar to cement it well together. Six or eight inches of the mixture is then put on the bottom, and when well set, another coating is put on, consisting of one part of cement and two of sand. This will answer for making the bottom of a cistern that is to be cemented up directly upon the ground without a lining of bricks; it will also form a very good cellar floor.—*Manufacturer and Builder.*

Marvels of Man.

While the gastric juice has a mild, bland, sweetish taste, it possesses the power of dissolving the hardest food that can be swallowed; it has no influence whatever on the soft and delicate fibers of the living stomach, nor upon the living hand, but at the moment of death, it begins to eat them away with the power of the strongest acids.

There is dust on sea, on land; in the valley and on the mountain-top; there is dust always and everywhere; the atmosphere is full of it; it penetrates the noisome dungeon, and visits the deepest, darkest caves of the earth; no palace door can shut it out, no drawer so "secret" as to escape its presence; every breath of wind dashes it upon the eye, and yet that eye is not blinded, because there is a fountain of the blandest fluid in nature incessantly emptying itself under the eyelid, which spreads it over the surface of the ball at every winking and washes every atom of dust away; but this liquid, so mild, and so well adapted to the eye itself, has some acridity, which under certain circumstances, becomes so decided as to be scalding to the skin, and would rot away the eyelids were it not that along the edges of them there are little oil manufactories, which spread over their surface a coating as impervious to the liquids necessary for keeping the eye-ball washed clean, as the best varnish is impervious to water.

The breath which leaves the lungs has been so perfectly divested of its life-giving properties, that to rebreathe it, unmixed with other air, the moment it escapes from the mouth, would cause immediate death by suffocation, while if it hovered about us, a more or less destructive influence over health and life would be occasioned; but it is made of a nature so much lighter than the common air, that the instant it escapes the lips and nostrils, it ascends to the higher regions above the breathing-point, there to be rectified, renovated, and sent back again, replete with purity and life. How rapidly it ascends is beautifully exhibited any frosty morning.

But foul and deadly as the expired air is, Nature, wisely economical in all her works and ways, turns it to good account in its outward passage through the organs of the voice, and makes of it the whisper of love, the soft words of affection, the tender tones of human sympathy, the sweetest strains of ravishing music, the persuasive eloquence of the finished orator.

If a well-made man be extended on the ground, his arms at right-angles with the body, a circle, making the navel its center, will just take in the head, the finger-ends, and feet.

The distance from "top to toe" is precisely the same as that between the tips of the fingers when the arms are extended.

The length of the body is just six times that of the foot; while the distance from the edge of the hair on the forehead to the end of the chin, is one-tenth the length of the whole stature.

Of the sixty-two primary elements known in nature, only eighteen are found in the human body, and of these seven are metallic. Iron is found in the blood; phosphorus, in the brain; limestone, in the bile; lime, in the bones; dust and ashes, in all.—*Journal of Health.*

Japanned Ware.

The important manufacture of japanned ware can claim a high antiquity, the art of japanning having been practiced in China and Japan for an indefinite period before our first intercourse with those countries. This beautiful lacquer or varnish not only preserves the iron from rust and gives it a cleanly surface, but at the same time affords opportunity for the most elaborate and varied ornamentation. Articles in this ware frequently owe by far the greater part of their value to the decorator's art. Japan painting is, in fact, a distinct artistic profession, and has in its time educated more artists than any other. More than one Royal Academician has graduated in the japanner's *atelier*. As with tin ware, the early productions of this class were, no doubt, clumsy and ugly enough, and for the same reason, that it was difficult to get iron that would bear bending and twisting, or that would be sure to keep a good even surface. The modeler and stamper has now free play, and the decorator has no reason to fear that his work will be spoiled. Tea trays, waiters, coal-vases, canisters, etc., are among the staples, and the production is enormous. In Wolverhampton alone, which is the chief seat of the manufacture, as many as 100,000 trays and waiters will be turned out in a week, when trade is good. Most of these, however common, used to be painted by hand, with a celerity of execution that would put Wardour street to the blush. It was said that a "skilled artist" could with ease paint two gross of landscapes in a day. Most of the common decoration is now effected by the new method of transfer printing, for which probably porcelain decoration suggested the idea. The pattern of picture is printed by the lithographic process on fine tissue paper, which is laid face downward on the japanned plate, and adheres to the sticky varnish with which it has been treated. After a time the paper can be wiped off but the colors remain and are afterward fixed by stoving. A new decorated tin has come into the market printed in the sheet, it is laid directly on the metal, with such permanency as enables it to be made up afterward into canisters and other articles without injury, and this has very much cheapened the production of those articles. Generally speaking a much better taste prevails now than formerly, and the monstrosities that so delighted our forefathers are rapidly disappearing. "Abraham in red, sacrificing Isaac in blue, on a green altar with a black ground," is no longer the highest ideal of tea-tray art.—*From Great Industries of Great Britain.*

Sickness of Housewives and Servant Girls.

This is not to be wondered at. They are respectively required to perform the duties of the kitchen, and much of their time is passed at the sink, over which they remain, in the aggregate, an hour or more each day, during which time they naturally breathe more of the air which is more directly in front of them—scarcely any of which is not rendered more or less unhealthful by the impure fumes which arise from the sink. These come from several sources. In but few houses erected in this city, prior to the past three or four years, and in nearly all those erected up to the present time for tenement purposes, where cheapness of construction has exercised a controlling influence, the sink traps are not good. The exception is to find those which afford reasonable protection against the ingress of sewer-gas. As we have often stated in this journal, the generality of people seem satisfied if they discover a piece of bent pipe under sinks and other similar places, and will swear that they are safe from the dangers of sewer vapors, while, at the same time, the very air being breathed by them while thus expressing themselves may be more or less impregnated with the deadly element. In this way, they illustrate the sublime ridiculousness of their stupidity and ignorance, to which thousands of people have sacrificed their lives; and we have no idea that all the fools are yet dead.

But it is a hardship upon the female race, whether as wives or servants, to be continually exposed to the consequences of this sort of common defect in house construction; and we heartily wish that there was an effectual city ordinance which provided that all sink and other traps in use in this city should be tested by a fully competent plumber and sanitary engineer, with full powers to compel the removal of all those which were not effective and safe. If such was the case, there would not be plumbers enough on the Pacific Coast to complete the work of tearing out and replacing defective traps, in twelve long months, working ten hours each day.

But aside from imperfect traps and plumbing work, the generality of sinks are rendered impure by the impregnation of vegetable and animal matter, which is forced into the pores of the wood, and there passes to decay. This is going on continually, each day furnishing a new supply of decomposed evaporations and material to repeat the process. Then, also, the manner in which thousands of sinks are put up, with bad joints at numerous parts sufficient to receive, in the aggregate, a pound or two of decomposing substances, is another fearful fact. And in this particular, the "wood-butcher" is no better than the "fraud of a plumber." We use the terms employed, because we should consider it a reflection upon *mechanics* to denominate some men who handle tools by so honorable a title. Our remarks apply particularly to wood sinks, not lined with metal, which are generally used in this city. Sinks lined with sheet zinc have long since been abandoned, as experience demonstrated the fact that after a moderate amount of wear and tear, with the natural expansion and contraction caused by the use of hot and cold water in them, cracks in the metal were a certainty, and when these occurred, they became the receivers of sink debris, which, finding its way under the metal, could not be removed, and as a consequence, remained beyond reach, creating stench and the fumes consequent upon decaying culinary matter.

But it is not our purpose in this article to pursue the question of sinks beyond the thought first suggested—that a vast amount of the headaches, coughs, and enfeeblements in females who perform kitchen duties are attributable to defective sinks; and while the sand-lot minions cry out against the Chinese, as a pestilential curse to California, we think that the servant girls and the wives of families who do their own work have a cause of complaint of great magnitude in imperfect and unwholesome sinks. For, while Chinese competition may and does deprive many of the laboring classes of the means to earn bread for their families, in thousands of instances unsafe and unclean sinks aid in terminating the existence of those who by circumstances are compelled to encounter their defects.

Washington as a Voter.

Washington voted at all the Fairfax elections until the close of his life, uniformly supporting the Federal candidates. Although living some distance from the court house at the Alexandria market, he generally voted early. The polls were reached by a flight of steps outside, which, in 1799, had become old and shaky. When the general reached the steps, he placed one foot upon them and shook the crazy ascent, as if to try its strength. Instantly twenty brawny arms, one above the other, grasped the stairway and a dozen men's shoulders braced it. Nor did a man move until the venerable chief deposited his vote and returned. "I saw his last bow," said one of them half a century afterward; "it was more than kingly."—*Wm. F. Carne, in Harper's Magazine for February.*

Lead and composition pipes are much used for house gas pipes in England. Rats have often been accused of gnawing holes in water pipes, and recently in London they made a hole in a lead or composition gas pipe. The old story was that rats could tell a water pipe from a gas pipe, and so spared the latter in their searches for drinking water; but this last occurrence proves this rat story to be untrue. Iron pipes are recommended for basement stories at least.

A ten-year contract with the Cincinnati, O., Gas Light Co., for gas at $1.60 a thousand, has been made by the city. Mayor Jacob signed the ordinance on February 24th. The *Commercial* thinks it is too much, but it was feared that the question might be brought in the courts by the company were the price put lower.

Commendations.

We are truly gratified that our humble effort, undertaken under the most discouraging circumstances, has met with such universal favor. So far as we have heard or read, the expressions of the press throughout the length and breadth of this coast, and from the Eastern States, are, without an exception, of the most flattering character. And what pleases us much is unsought praise from individual sources which we supposed were so thoroughly choked up with embitterments growing out of business contests, that it would be impossible for a single generous sentiment to leak out. But we have plainly stated, and again state most honestly, and have sought to demonstrate in these columns, that we should strive to rise above all personal feelings, and treat our best friends and worst enemies equally, generously, and fairly. How nearly we have done so we leave our readers to judge. If we have used plainness toward certain classes, as being incompetent in the lines of business adopted by them, it has been without any personal enmity; for we pity those who have been so unfortunate as to fail in the attainment of a perfect mastery over the mechanical pursuit chosen by them. There is a science in all things, even the swinging of a pick, or the handling of a shovel. We have watched men using these instruments of labor, and receive pleasure from the grace and skill which some laborers display in their handling. There are awkward botches even among those who dig away our clay-banks and level our sand-hills. And we hope, if life is spared us, to be able to create a more elevated sentiment in every line of labor and mechanical operation, and to inspire harmony and fair sentiment in all relationships involved in the architectural profession and building business.

There are no good reasons why the best of understanding should not prevail among all classes of men, and in as large a degree among architects as in any other known profession. And with those who indulge in and encourage an opposite sentiment, the evidence is clear that there is something lacking at home. But under all circumstances we shall endeavor to cultivate and establish an honorable and kindly understanding, feeling assured that by so doing we will best serve the highest interests of the profession, and certainly obey the natural law of our own mind.

As illustrative of the opinion of journals outside of San Francisco, we quote the following, selected from a large number of similar notices which have appeared in publications issued in this State and east of the Rocky Mountains:

"We have received No. 3 of the CALIFORNIA ARCHITECT AND BUILDING REVIEW, an exceedingly neat publication, devoted to architectural, mechanical, sanitary, scientific, and other matters. It is as full of good things as an egg is of meat, and is especially interesting to those whose tastes are inclined to these subjects. The illustrations are very fine, and its whole make-up is a credit to the proprietors. Jas. E. Wolfe, one of the oldest architects in California, is the editor, and he wields the pen with a facility that would do credit to the journalistic veteran. The publication is a valuable one, and will doubtless succeed."—*Vallejo Evening Chronicle.*

"In our issue of March 4th, 1880, we published a valuable article on 'Laying and Nailing Floors,' clipped from the CALIFORNIA ARCHITECT AND BUILDING REVIEW, and which we omitted to acknowledge. We would add that this valuable monthly publication is a credit to the Pacific Coast, and contains much that is of value to the whole country. A work devoted to making homes beautiful and houses convenient and comfortable adds to our pleasure and happiness, and deserves the support of a reading public."—*The Mechanic, Smithville, N. J.*

"A VALUABLE PUBLICATION.—Upon our table we find the CALIFORNIA ARCHITECT AND BUILDING REVIEW, an ably conducted journal, devoted to architectural, mechanical, scientific, sanitary, and other kindred matters. We advise architects, contractors, and mechanics to subscribe for it."—*Calaveras Advocate.*

"The CALIFORNIA ARCHITECTURAL AND BUILDING REVIEW, edited by Jas. E. Wolfe, is full of practical and reliable information, and should be in the hands of property owners and builders generally. It is only $1.50 a year."—*Healdsburg Enterprise.*

"The CALIFORNIA ARCHITECT AND BUILDING REVIEW, published at San Francisco for $1.50 per year, is worth double the money to everybody who expects to build a house, even a 'tule.'"—*Courier California, Bakersfield, Kern Co., Cal.*

"The April number of the CALIFORNIA ARCHITECT has come to hand. It is edited by J. E. Wolfe, S. F., and is indorsed by a large number of prominent and influential architects. With each number there are four pages of plans and elevations. The articles are practical and interesting to all concerned in the planning or construction of buildings."—*Oakland Times.*

"The CALIFORNIA ARCHITECT AND BUILDING REVIEW, replete with information of great value, is at hand. It is published monthly, and contains elegant cuts and designs to further embellish the elegant appearance of the only architectural publication on this coast. Great praise is due J. E. Wolfe for this enterprise in giving us this needed monthly. It is not sectional, and all should read it. Its columns, rich with live matter on various topics, appeal to all."—*Exchange.*

We might add pages of similar notices, which come to us from all quarters daily, and as none of them have been suggested nor solicited by us in any manner, direct nor indirect, they are the more highly appreciated, and, as in duty bound we return our kindest acknowledgments to one and all of our editorial brethren, who have so generously approved and recommended this publication.

The Use of Lemons.

The lemon tree is a native of Asia, although it is cultivated in Italy, Portugal, and in the south of France. In Europe, however, it seldom exceeds the dimensions of the smallest tree, while in its native state it grows to over sixty feet in height. Every part of this tree is valuable in medicine, though we rarely employ any of it but its fruit, that is the lemon itself. And every one knows how to employ this, as in lemonade: To squeeze the juice into cold water—this is the shortest way; or to cut it in slices and let it soak in cold water; or to cut it in slices and then boil it. Either way is good. Lemonade is one of the best and safest drinks for any person, whether in health or not. It is suitable to all stomach diseases, is excellent in sickness—in cases of jaundice, gravel, liver complaints, inflammation of the bowels, and fevers. It is a specific against worm and skin complaints. The pippins, crushed, may also be used with water and sugar, and taken as a drink. Lemon juice is the best anti-scorbutic remedy known. It not only cures this disease, but prevents it. Sailors make a daily use of it for this purpose. I advise every one to rub their gums daily with lemon juice, to keep them in health. The hands and nails are also kept clean, white, soft and supple, by the daily use of lemon instead of soap. It also prevents chilblains. Lemon is used in intermittent fevers, mixed with strong, hot, black coffee, without sugar. Neuralgia may be cured by rubbing the part affected with a cut lemon. It is valuable also to cure warts, and to destroy dandruff on the head by rubbing the roots of the hair with it. In fact, its uses are manifold, and the more we employ it externally and internally, the better we shall find ourselves. Natural remedies are the best, and nature is the best doctor, if we would only listen to it. Decidedly rub your hands, head and gums with lemon, and drink lemonade in preference to all other liquids. This is an old doctor's advice. Follow it.—*S. F. Local.*

AIR CONFINED ANYWHERE, even in a clean room, becomes offensive, probably unhealthy, with a disagreeable smell of closeness, and confined with filth in a drain or sewer, it must be infinitely worse. Drains built tight, with traps, etc., so that there is no ventilation of their interior, generate very poisonous gases, which are ready on the occurrence of any small leak to escape and poison everybody who happens to go near them. The best arrangements for ventilators in houses is to have a separate flue built in the chimney-stack expressly to receive the ventilator-pipes. Thus the air from the drain is discharged high in the atmosphere in a position to be mixed with smoke, and the noxious properties are destroyed; the smoke, whether of wood or coal, containing about the best chemical disinfectants known.—*Dr. Joseph Wilson.*

The Human Brain.

The size of the brain is not in proportion to the physical development of the body, either in animal or man. Even in men there is no fixed relation between the size of the body and of the brain. A small man may have a large brain and *vice versa*. Men of great intellectual powers have generally, if not always, possessed large brains. The brain of Cuvier, the great French naturalist, weighed between 59 and 60 ounces, yet he was below the medium stature. Napoleon Bonaparte was small in stature, but his brain weighed over 58 ounces. Daniel Webster's brain was about the same weight as Napoleon's, but the former was rather a large and powerfully built man. Stephen A. Douglas, when a young man, was short and small, weighing not more than about 130 pounds, at which period his large head seemed almost a deformity. The quality of the brain, however, is quite as important as the quantity, so that a large brain does not, of necessity, constitute a great man. The average weight of the adult European male brain is 49 to 50 ounces; that of the adult female, 44 to 45 ounces.

Liens of Mechanics and Others Upon Real Property.

The concurring opinion of Justice McKee of the Supreme Court, in the mechanics' lien case of Soss *v.* Strelitz, says: "All payments made by the owner of a building to his contractor, and those made by a contractor to a material-man for materials furnished to be used in a building, should be applied in satisfaction of the original contract. Neither the contractor, nor a material-man, nor workmen upon a building, can legally apply any portion of such payments to the satisfaction of general debts or demands existing between himself and others, who may be entitled to file liens upon the building against the owner. If that could be done it would have the effect of subjecting the owner to payments of other debts between the contractor and his employes outside of his building contract."

A PLASTIC CEMENT is a recently patented French product, which is called after its inventor, "Jannin's Cement." It is simply composed of a mixture, in suitable proportions, of yellow oxide of lead—that known in trade as Massicot is preferred—and glycerine; other metallic oxides and coloring matters may be added to the above mixture, according to the character or color that may be desired. The cement may be made to possess more or less stiffness by varying the proportions of glycerine—the larger the percentage of the latter the softer the cement, and *vice versa*. This cement is represented to be especially adapted for molding objects which demand an extreme delicacy in the lines of the cast, such as engraved blocks and plates, forms of printing type, photoglyptic plates, etc. It is affirmed that it sets in a few minutes under the influence of a gentle heat, and then admirably resists heat and pressure. When set, it is said to make a good substitute for lithographic stone. It is also recommended for artistic reproductions such as fac-similes of terra-cotta, the color and sonorousness of which it closely imitates. It does not shrink in setting. Our authority for the above is the *English Mechanic.*

WHILE we are rejoicing over the general revival in the industries of the country, it is not pleasant to learn that across the water one class at least of the producers—the farmers—are in the face of dire distress. Yet such is the fact, if we accept the statements, not of the alarmists, but of responsible correspondents of the London dailies. According to the latest reports, the depression among the agriculturists, especially in the south-west, is very grievous. In East Devon, agricultural operations are far behind, and no early crops can be looked for. The scarcity of sheep is very marked, there being hardly an animal to be seen in North Devon or on the Dartmoor hills. In South Devon affairs are almost as bad, but in Somersetshire and Dorsetshire the sheep are more numerous, although even in the most favored localities the flocks are being decimated by disease. It is stated that a wet spring would mean absolute ruin to hundreds of farmers, while farms which a year ago were at a premium are going a-begging, and noble mansions with fine estates are wanting occupiers.—*The Mechanic, N. J.*

Cruelties.

Cruelties assume multitudes of forms and shapes. All physical and mental sufferings and tortures, caused by one party to another, whether designed or accidental, assume a form of cruelty, varying in degree and culpability according to circumstances. The father, mother, or master who uses the rod rashly or unmercifully, without *good and sufficient* cause, is deemed brutal and inhuman. Yet there are a thousand means of torture and punishment, far more severe and fearful in their infliction, than the rod or lash. An *unguarded word*, an unkind expression may cut and lacerate the heart, and cause wounds deeper and more painful than the piercing of a two-edged sword. Wounds which may be healed by the surgeon's skillful treatment may be borne with patience and smiles, but not so with those happenings which produce distresses and sufferings which neither the skill of the surgeon nor physician, nor all the remedies known in Materia Medica can alleviate or heal. But the species of cruelty to which we make special reference in this article, is one not generally thought of nor considered, although it is *in fact* of the most distressing character, and practiced in San Francisco to a very great extent. It is not as universally appreciated as it should be, that there are laws regulating and controlling human health and life, which if violated, produce serious consequences. It matters not how well arranged, or how beautiful a "*home*" may be; if the matter of carefully providing for its healthfulness is overlooked or neglected, the entailed sorrows and sufferings outweigh all other considerations. And the question this thought presents, is this: "Is it not cruelty, though innocent it may be, to place loved ones in habitations, however beautiful and excellent they *may* otherwise be, where the appointments are imperfect, and calculated to produce sickness and suffering on the part of innocent women and children?" And we repeat, that a large number, if not a majority of cases of sickness and death among women and children, occur through gaseous and impure inhalations. Some die of *old age*, even though perpetually dwelling in the cheerful sunlight, and ever breathing the pure atmosphere; but those who are confined the greater part of their time, in homes where pure air is incidental and a vitiated condition of the atmosphere predominates, die young. These suggestions are not fanciful, but real, and it behooves every man who loves his family, to hearken to their warnings, and consider well the serious involvements connected with the erection of their *homes*. Perfectness of plans is certainly the first consideration, and until plans of some sort are determined upon, nothing can be done. But these are only the commencement—the foundation for future action. Those matters which involve and require the fuller exercise of good judgment, and practical experiences, present themselves after the plans are perfected. Yet a great many suppose that when they have worked out their "*idea of a home*," and had those ideas transferred to paper, that the greatest difficulty has been overcome. But the after-matters—those considerations which are calculated to affect health and life, remain to be dealt with and provided for. True, in some cases, right meaning men are misled and deceived in their conclusions and selection of parties to intrust with their building interests, but the consequences are none the less serious because of an innocent mistake. But more frequently the *desire to economize cost*, is the controlling motive, and blinded by the prospects of saving a few dollars, owners often enter into arrangements with incompetent parties, only to pay the penalty of their error, in losses which neither silver nor gold can replace. All this is fully sustained by the experiences of all competent architects and plumbers, who, from time to time have been called in to remedy cases where stenches, foul and sickening, have permeated every apartment, and the internal atmosphere has been of such a character, that no human being could endure it for any great length of time and live. And many a sad story is related, how some "dear little Eva," or "my sweet Willie," had been "taken away" by diphtheria or other ailment, the sources of which are recognized to exist in impure sewer and other gases, and zymotic surroundings.

The thoughts and *facts* involved in the considertions suggested, might be extended into a lengthened article, but for the present we shall make no further reference, than to the various reports of the Board of Health, where the statements will be found that, as a rule, during times and seasons when our street sewers are well cleansed, as compared with times and periods when they are neglected, the death rates vary from twenty to forty per cent. Thus clearly establishing the fact, that sewer-gases are fearful in their effect upon human life, and with this fact established, all argument ends in reference to the effect produced upon the inmates of buildings, where the insidious destroyer is, to *any extent*, permitted to enter. And we again ask, is it not *cruelty to loved ones*, to place them under circumstances calculated to jeopardize their health and lives?—which is the case whenever sewers are imperfectly laid, and the plumbing work executed without proper traps, vent-pipes, and every precaution necessary to secure perfect work.

EDITOR CALIFORNIA ARCHITECT AND BUILDING REVIEW: I am also glad with a "sufferer from bad plumbing," that you are taking an active interest in sanitary plumbing, and I fully agree with him that it is a question understood by but few, and that there are many self-styled plumbers and sanitary engineers that know but little about their business, and from that fact many people believe that from the many cases of sickness and death caused by bad plumbing, that it is impossible to have the modern conveniences of plumbing in their dwellings. There is probably no other branch of business in this country that receives so much abuse, yet there is certainly no other one that so influences the lives and health of a community. If you are sick you send for the best physician; if you have any legal business, you send for a lawyer in whom you have confidence; and in both cases you obey their instructions and heed their advice; but if you want any plumbing done you send to the nearest shop, not stopping to inquire as to capacity, honesty, or anything else. If you *want good plumbing* you can get it; only find out something about those you are going to employ, and you will find men as worthy of your confidence in this calling as in any other, and people building need not be deceived if they will only inquire about the merits of those in that business. And are the architects not to blame, "in a measure," in not enlightening their patrons, for they *do know* that there are those following that business that are *competent and honest*, and are faithfully trying to elevate their profession, and to educate the public to believe in the importance of having that branch of their work attended to by known competent workmen. "Sufferer" says: "It is not surprising that there is no way yet devised to positively keep sewer-gas out of a house." I take issue with him, and distinctly say it can be done, and *with* the modern appliances that we are now using. Some of them lately invented are the best in the world. Only get some one who knows his business to put them in, and he will guarantee you against sewer-gas. Mr. Waring is right in saying that water in traps as a seal against sewer-gas, *unaided by ventilation*, cannot be relied on; but let a competent plumber and sanitary engineer attend to the sewerage and ventilation and plumbing that properly belongs to him, and you may sleep securely in your homes without fear of being poisoned by sewer-gas.

Respectfully,
ONE WHO KNOWS WHAT GOOD PLUMBING IS, AND HOW TO DO IT.

We are Glad to See It.

The many articles appearing in this journal bearing upon sanitary matters and defective plumbing work, have stimulated an interest on the part of a large number of our prominent plumbers, who have extended us hearty congratulations and expressions of appreciation. And we are pleased that the interest so created has induced some of them to send us articles for publication. We hope that the sentiment will increase, as we know that there are many intelligent gentlemen in the plumbing business fully capable of handling ably all issues involved in the connections named. We shall gladly give place to all meritorious articles.

Canvassers Wanted for this Journal.

Steady and industrious men in all parts of this city, State, and coast can earn good wages in canvassing for this journal.

EDITOR OF CALIFORNIA ARCHITECT AND BUILDING REVIEW: Dear Sir—I have read with interest articles relating to sanitary matters in your paper and others, and find that authorities agree that water is not a preventive of sewer-gas, which is most to be feared above all things in plumbing done by parties of little or no experience. As all houses, from the richest to the poorest, require to be connected with the street sewer, all must suffer from the deleterious effects of sewer-gas, which, all physicians agree, causes three-fourths of all the zymotic diseases.

Is there not some plumber or other person inventive enough to devise some plan by which that most deadly poison, "sewer-gas" will be excluded from our houses, and allow us the comforts and luxuries of complete plumbing. He would benefit us all, and save thousands of our dear ones who are now carried to an early grave.

I think the time is not far distant when some method will be devised in plumbing which will produce perfect sanitary results. Now, that water, or any other seal with an overflow, cannot accomplish the desired end, it will be necessary to have a metal, or some other substance, that is impervious to sewer-gas, and in some manner do without that most dangerous and hidden overflow, which, though not seen, is still working in the dark hours of the night, ejecting the deadly sewer-gas, and bringing the disease to every one.

If such an end could be accomplished, there are none who would refuse the opportunity of securing the same, thereby rendering to us the comforts of the closet-bath, basin, etc., etc., without fear of danger. On an assurance of this safety, there would be much more plumbing done, and each and all of us enjoy better health.

Now that I am writing, I would like to say a word about plumbers in particular and tinkers in general. I would liken them to doctors and dentists. They are both essential to their trades; but you damn the trades when you combine the two. It is a fact that most of the defective plumbing in this city is done at those which are commonly known as "tinker's shops," by men that have little or no knowledge of the business. Having traveled around the world, and having been in this city for the past twenty years, I have, during this time, studied plumbers and plumbing; and I find that plumbers on this coast are, both in practice and theory, equal to any in the world—and why should they not? For we have them from all parts of the world, and they are as fair a representative as can be found in any other branch of mechanics. And I am sure, from what I have seen of the rivalry that exists between them here, that if the object sought is ever attained, it will be likely to be accomplished by our California plumbers. In conclusion, would it not be a good plan for one of our millionaires to display enough of public spirit, by making an offer for a process or method by which sewer-gas can be kept from entering our dwellings?

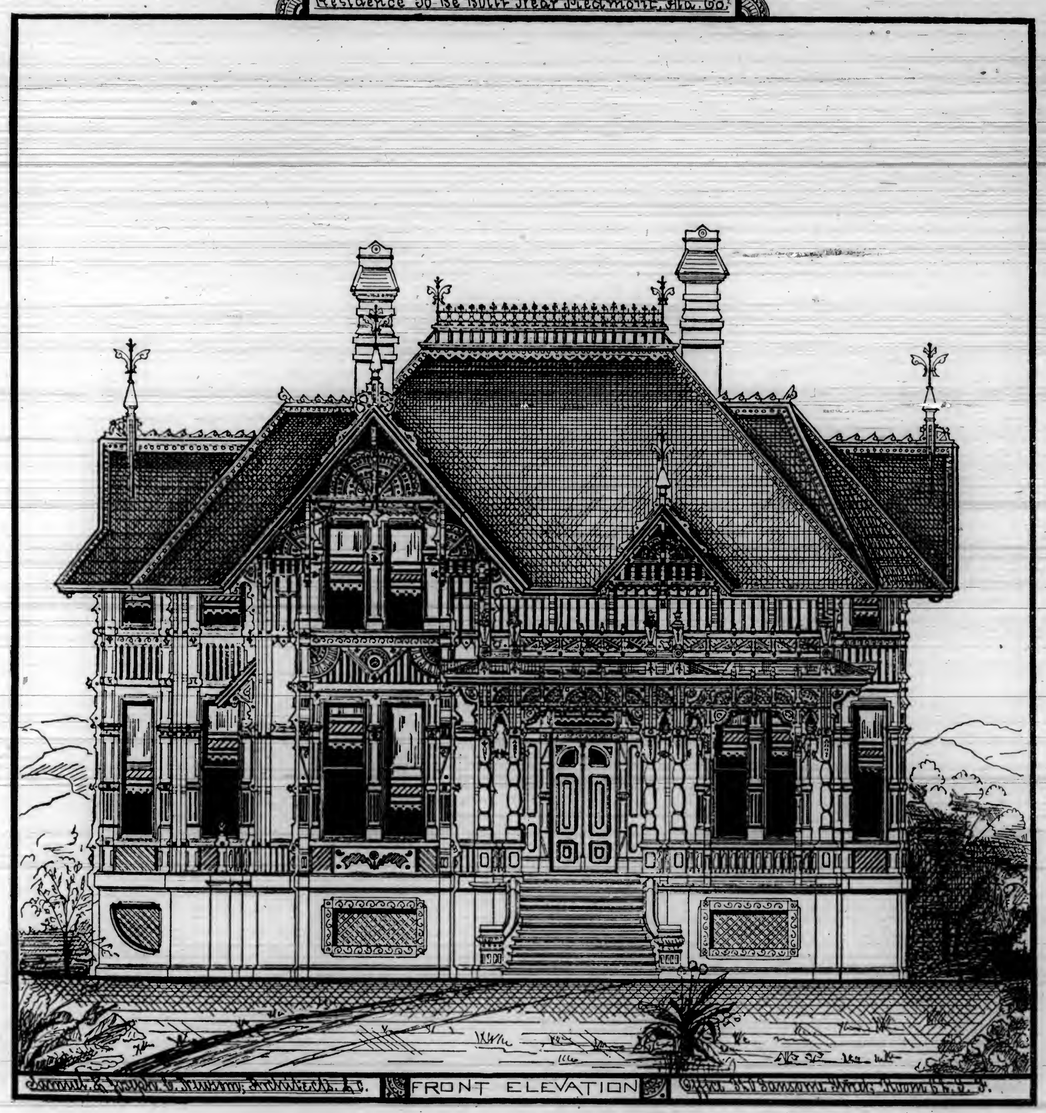
OLD PLUMB.

A QUERY AND REPLY.—There is a youngster in Virginia City, Nev., who never fails in answering any question put to him. The other day his father tried to "stump" him with this problem: "My son, suppose you had a kitchen in the northwest corner of your house, and a stable in the southeast corner of your yard, so that when the wind blew from the northwest there was a strong smell of corned beef and cabbage in the house, and when the wind came from the northeast there was a strong horse odor about the premises, how would you act to prevent the corned beef odor from permeating the kitchen, and the horse odor from perfuming the stable?" "Why," replied the lad, "I'd keep my horses in the kitchen and cook my corned beef in the stable."—*Plumber and Sanitary Engineer.*

THE New York *Sun* gave recently an amusing account of a young German named Siebert, who played the part of an epileptic so well, in the presence of policemen and doctors, that they believed it was a true thing; till a spoonful of hot water on the nose brought him quickly to his legs and his senses, and he allowed that he did the thing "for a living," in the hospitals. He had heard that hypocrisy was practiced largely in matters of religion, and thought a little of it might be overlooked in the health department. But religion and sanitary science are two very different things.

ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

Residence To Be Built Near Piedmont, Md. Co.



FRONT ELEVATION

For description, see " Our Illustration Plates," page 49.

ROYAL INSTITUTE OF BRITISH ARCHITECTS
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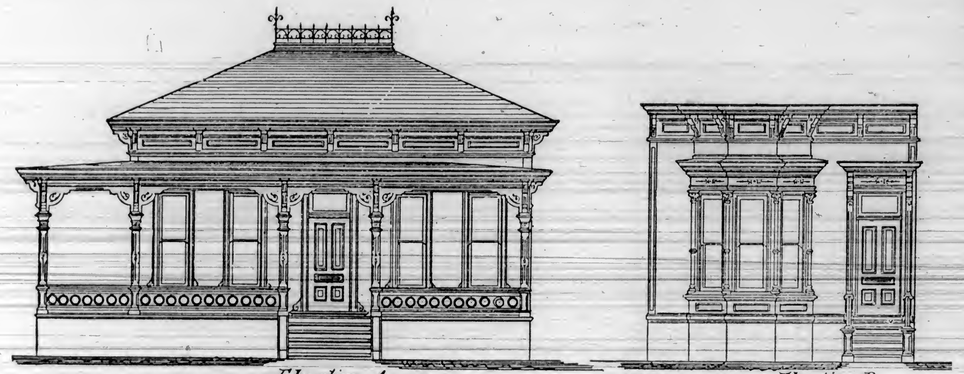
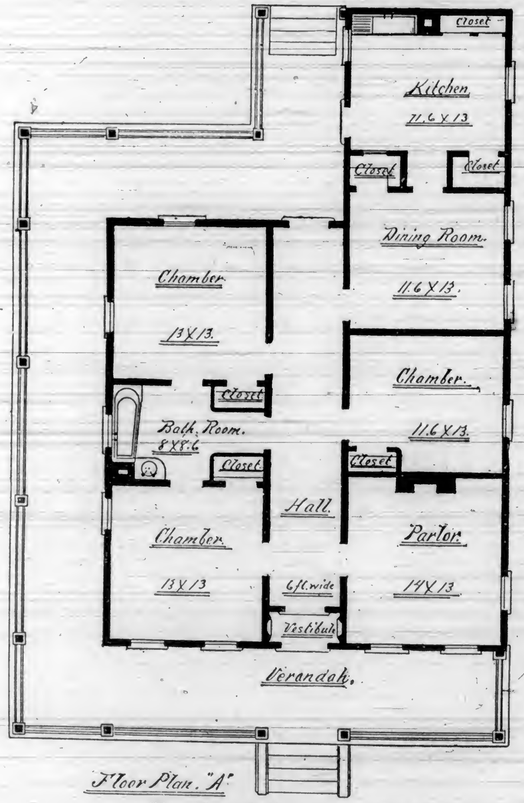
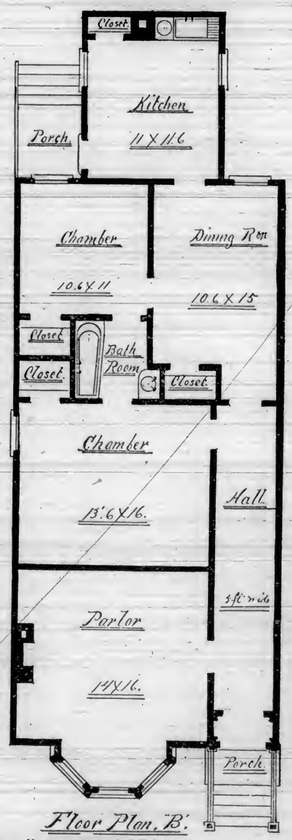


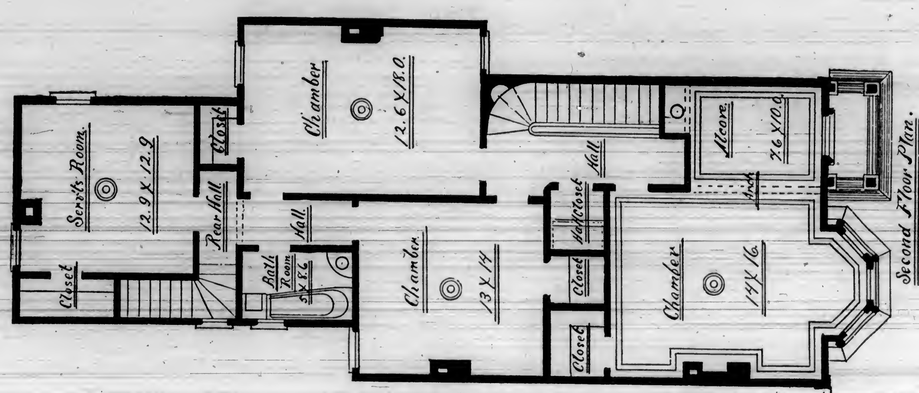


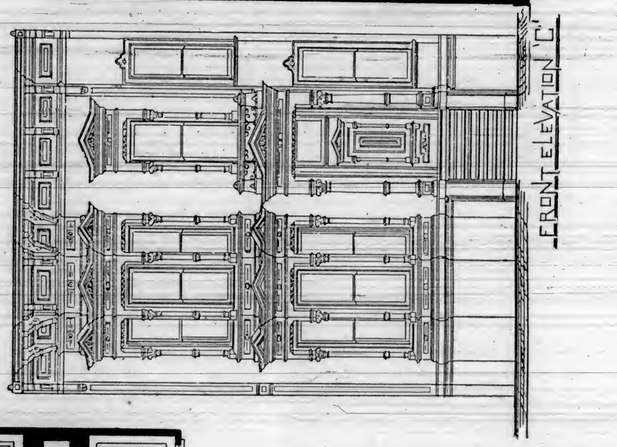
Floor Plan. "A."



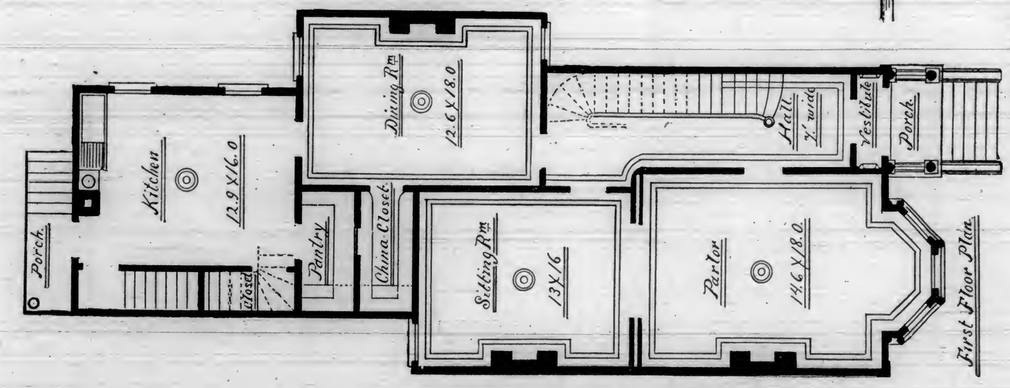
Floor Plan. "B."

For description, see "Our Illustration Plates," page 49.





FRONT ELEVATION "C"



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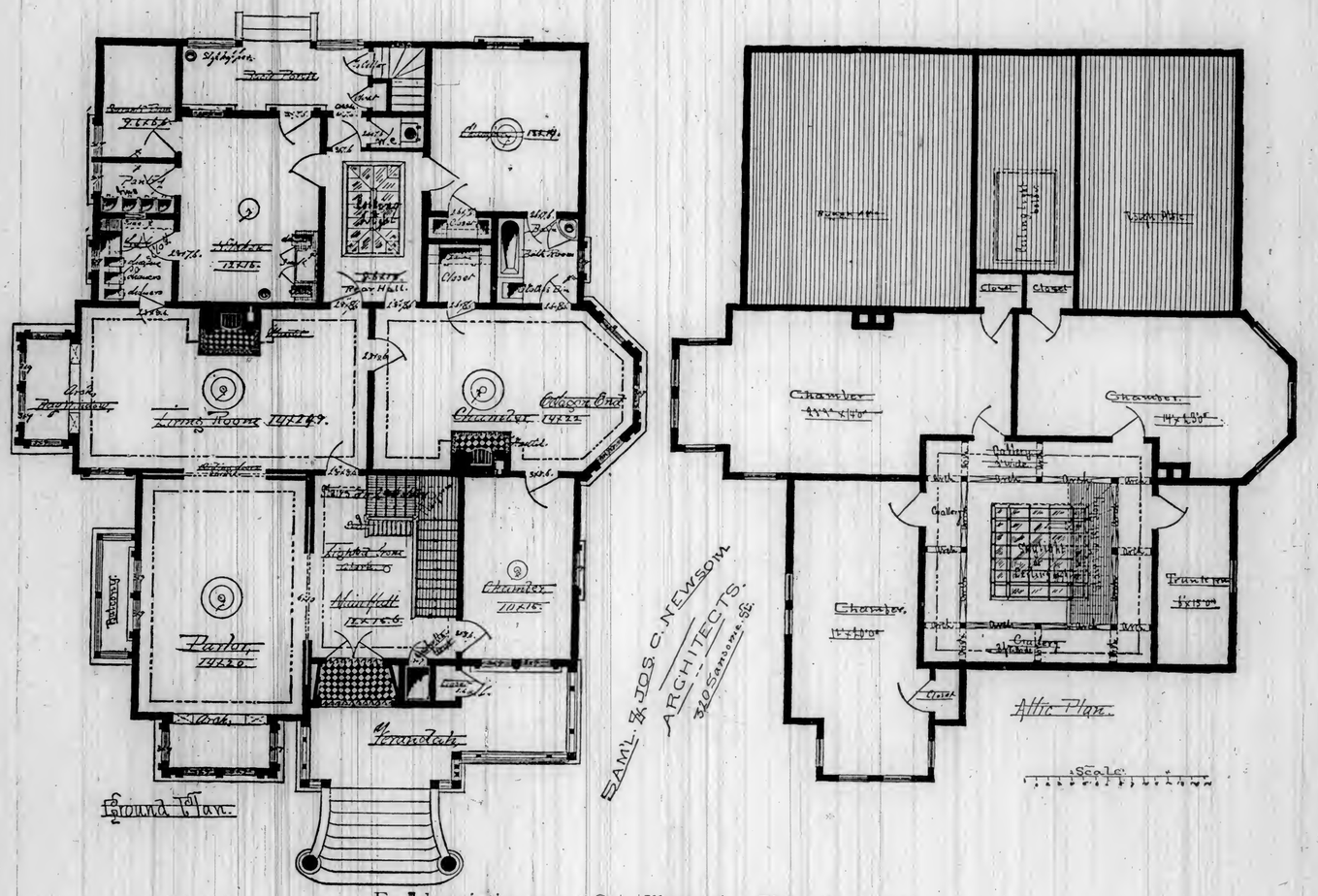

For description, see "Our Illustration Plates," page 49.

ARCHITECTS
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Not a Preventive.

Wash basins in connection with chambers, bath, and living rooms, when not properly fitted up, are conveniences exceedingly detrimental to the health of those who occupy the apartments. It is a common occurrence that the smell of sewer-gas is discoverable passing through the trap, pipe-work, and fittings, filling the room with offensive odor; to remedy which many persons insert the plug in the bottom of the basin, and fill the bowl in part with water, presuming that by doing so they place an estoppel upon the further ingress of the poisonous fluid, while in fact no remedy at all is effected so long as the apertures of the overflow-pipe are left unsealed. The waste-pipe from the basin and the overflow-pipe are one and the same, and the closing of an aperture in the side of the pipe—the basin waste—simply prevents the inlet of gas at that particular point, but furnishes no obstruction to the passage of the offensive air into the room through the end of the same conduit, so long as the end is left open, which is always the case at the side of the basin connecting with the overflow. Various devices are resorted to by different individuals to render basins safe as chamber conveniences; but if the plumbing work is imperfectly executed all the subterfuges that may be resorted to are temporary, uncertain, and unsafe. The only effectual remedy is to remove the imperfect work and have it replaced in proper shape by some competent workman skilled in the art of complete workmanship. We scarcely feel inclined to offer any other advice in such cases, as we so abominate imperfect workmanship that were it in our power to proclaim an effectual, irrevocable law, we would consign all botches and their work to an everlasting mechanical oblivion. But in compassion to those who are innocently suffering from the causes mentioned, we suggest, first, that if there is not a deep and full trap—not merely a crooked piece of pipe, but a device of some sort, furnishing a full and complete water seal under the basin—let not the sun disappear beneath the western horizon before such is secured. With this done, and the indications of sewer-gas remaining, open the basin-cock so as to permit a small jet of water to run constantly into the basin, if only by drops. For if with a full trap in the waste gaseous odors remain, it is evident that the trap syphons, or by impregnation the gases pass through the water. People are often deceived by confiding in the safety of basin-traps, not knowing that they are frequently emptied by the discharge of the waste water passing through them. We have witnessed repeated illustrations of the syphoning process, and know that unventilated traps are not reliable. Permanent ventilation is best secured by air-pipes passing up into the open air, but a substitute for these may be found in an air-valve device placed upon the top of the trap, which yields to the force of the vacuum created in the waste-pipe by the discharge passing through them. These substitutes for air-pipes may be found at Mr. D. Bush's, on Post Street, and perhaps at other plumbing establishments. Any plumber can obtain and apply them. If the trap is at all sufficient, a small stream of water running constantly into the basin will more effectually secure safety and freedom from the ingress of sewer vapors than all the filling of basins with water that can be resorted to.

EDITOR CALIFORNIA ARCHITECT AND BUILDING REVIEW: I notice in your paper for April, an article headed "Inspector of Plumbing Work." I think the article a good one, and one that is of great importance to plumbers and builders, and those having work to do. I know of no trade that is more abused than plumbing; it is a trade that is, as yet, but little understood, but with a large field to work in. Where there is a discrepancy in bids from $75 to $100 on a small job, it shows that there is a screw loose somewhere; for, at a low price good work cannot be done. Some one must lose by it. I would venture to say that to go into almost any of our shops and ask the question of supply and discharge of pipes, of certain quantities in a specified time, not one in twenty of our plumbers could answer the question; and these are questions that plumbers should understand. It is not the use of tools alone that makes a plumber, but it is a subject requiring great thought and calculation.

There is no trade that affects the public health as this trade. I have often spoken to plumbers about meeting once in a week, or once in a month, to exchange views. As a general thing, they say it would impart immediate knowledge to others that they have been years in acquiring; but I do not think this would be the case, as they would impart no more than they probably would receive. If such meetings could be effected, it would bar all novices, and accept only those who could stand an examination. I would go further—I would assess each member, and apply it to securing at stated times, persons well versed in hygiene and sanitary matters to lecture before the meetings. I am sure it would be productive of great good.

I have taken advantage of the offer of your columns, and if you think this article of enough importance, you are welcome to it. I shall use all my efforts to create the office of Inspector of Plumbing.

Diphtheria.

Dr. Benjamin Browning, the Health Officer of Rotherhithe (London), has an interesting paper on this subject in the *Sanitary Record*. He gives a variety of cases, occurring in city and rural districts, which appear to prove beyond a doubt that diphtheria may be caused by polluted water. The disease has been found to prevail in families using the water, while their neighbors who did not use it, but who were otherwise exposed to the same chances of infection, were exempt. In one instance he met with seven cases of diphtheria in the family of a railway station-master. He says: "I could ascertain no previous contagion, but found the existence of the customary polluted shallow well, close to the public latrine, the whole premises being isolated, standing on a lofty chalky embankment. Two casual visitors to the station (not to the dwelling-house) who drank some water in the waiting-room, also contracted the disease. There was no more of it before or afterwards in this parish while I knew it."

Dr. Browning seems to have been careful to satisfy himself that the disease could not have had any other origin than the bad water. On this point he says:

"In the country epidemics I have mentioned, at their commencement, no direct personal contagion could be made out, although it was anxiously sought for; aerial infection seemed everywhere contra-indicated, owing to the open and breezy situation of nearly all the implicated dwellings; in all of them the drinking water was organically impure, and received surface filth of every description; and in the town cases there was also clear evidence of water pollution by sewer-gas or fetid emanations, if not by actual deposit of dirt. And I venture to submit that I have therefore supplied some of that 'evidence,' which is by Dr. Parkes and others deemed 'still wanting' to prove the 'production of diphtheria by contaminated water.'"

Not satisfied, however, with this logical evidence, Dr. Browning determined to settle the question by direct experiment upon the lower animals; and he actually succeeded in infecting two kittens with the disease, by feeding one with milk mixed with water in which he had kept diphtheritic false membrane and sputum, and the other with milk adulterated with water taken from the cistern of a house where a fatal case of diphtheria had recently occurred. Microscopic specimens of the diphtheritic membranes from these animals were shown at a meeting of medical gentlemen, none of whom were committed to Dr. Browning's theory, and pronounced by them to be identical with specimens taken from human beings. If this testimony is not accepted as conclusive, it must at least be admitted that it is of sufficient importance to show that further experiments and investigations should be made in order to confirm or refute it.—*Scientific Canadian.*

ONE of the signs of the times in sanitary matters is the amount of space which the daily press is devoting to the subject. The clippings relating to water supply, sewerage, ventilation, etc., from the papers of our large cities for a single week, would make a small volume. It seems strange when one's attention is first called to this subject, that these repeated warnings and denunciations should not have more effect than they seem to do. But filth is like sin in that it flourishes in spite of preaching. Perhaps if the preachers were a little less contradictory in their advice more effect would be produced; but the great difficulty, after all, is ignorance on the part of the people—ignorance which it seems as if nothing but sad experience can remove.—*Plumber and Sanitary Engineer.*

Apologetic.

We are indebted to the *Plumber and Sanitary Engineer*, the *Scientific Canadian*, and other eastern exchanges for many of the interesting extracts appearing in this number of our journal. The many demands upon our time during the month past, has prevented the preparation by us of the usual amount of original matter; but we hope the selected articles will prove quite as acceptable to our many readers as though they had been written by our own pen.

We are pleased with the very warm and favorable reception accorded to our April number. Those who have not, should at once subscribe for this journal. "Everybody" says it is both valuable and instructive. The illustrations in No. 4 have attracted a large amount of attention; and we again promise, that with increase of patronage, improvements will surely follow. Every owner of real estate, and every tenant, as well as every contractor and mechanic on the Pacific Coast, should subscribe for it. Its contents are instructive to all classes. We are pleased to state that nearly all architects have subscribed.

Advice to Young Men.

Be ready to throw in an odd half-hour or an hour's time when it will be an accommodation, and don't seem to make a merit of it. Do it heartily. Though not a word be said, your employer will make a note of it. Make yourself indispensable to him, and he will lose many of the opposite kind before he will part with you. Those young men who watch the clock to see the very moment their working hour is up—who leave, no matter what state the work may be in, at precisely the instant—who calculate the exact amount they can slight their work, and yet not get reproved—will always be the first to be discharged.

THE report of the Registrar-General of England, for the last quarter of 1879, shows that the death rate in England has declined during the last nine years, although the aggregation in towns has not diminished. During the preceding thirty years—1841-'70—the annual death rate was stationary, averaging 22.3 per 1,000, while it has fallen to 21.6 per 1,000 during the last nine years. Infant mortality, taking the proportion of deaths under one year to births, has not exceeded 148 per 1,000 in the last nine years, while it was 152 per 1,000 from 1841 to 1850, and 154 per 1,000 in the decades of 1851-'60 and 1861-'70. It seems clear that real sanitary progress has been made in England during the last few years, and especially in the larger towns.—*Plumber and Sanitary Engineer.*

LEARNING TO SAVE.—The first thing to be learned by a boy or young man, or anybody else having the least ambition to become a useful member of society, is the habit of saving. No matter if a boy or girl has wealthy parents, each should learn to save, if for no other reason than that riches are well known to "take to themselves wings and fly away." Few are so well-to-do as to be secure against poverty and want. The children of the wealthy classes are often miserably poor; while men of large means have commenced life without other advantages than habits of industry coupled with the disposition to save. It is especially important that the children of people in moderate circumstances, and of the poor, should learn to take care of the money they get.

A CHILD'S LOGIC is not to be sneered at. His mind is keen enough to see folly in much of the reasoning of his seniors. A little fellow in Connecticut asked his parents to take him to church with them. They said he must wait till he was older. "Well," was his shrewd suggestion in response, "you'd better take me now, for when I get bigger I may not want to go."

FROM the completed tables of death statistics prepared by Register Nagle, it appears that infectious diseases took 4,148 victims in New York last year, of whom 2,662 died in tenement houses. Twenty-five persons died of small-pox, 238 of measles, 677 of diphtheria, and 1,479 of scarlatina. Diphtheria and measles have decreased, while small-pox increased from two cases in 1878 to twenty-five in 1879.

The First Locomotive.

The first locomotive engine introduced and worked in America was run on the Delaware and Hudson Canal Company's railroad in Luzerne county, Pa., in 1828, to convey the company's coal from their mines to Honesdale, a distance of twenty-four miles. This locomotive was called the *Stourbridge Lion*, and was built by George Stephenson at his works in the north of England, of the best workmanship and material and most improved pattern of that date, and was on view for a time in New York.

The following description of its trial is taken from D. Hollister's history of the Lackawanna Valley:

"The road passed out of Honesdale by a sharp north-westerly curve, with a moderate grade, and was carried over the Lackawanna by a long hemlock trestling, considered too frail by many to support the great weight of the mysterious-looking engine all ready for the hazardous journey. As the crowd gathered from far and near, expecting that bridge, locomotive and all would plunge into the stream the moment the passage was attempted, no one dared to run the locomotive across the chasm but Major Horatio Allen, who amid exultation and praise passed over the bridge and a portion of the road in safety. The engine, however, was abandoned, as the slender trestling forming much of the body of the road, sufficiently strong for ordinary cars, was found too feeble for the 'weight and wear.'"

Major Allen, of this first trip of a locomotive on this continent, says:

"As I placed my hand on the throttle, I was undecided whether I would move slowly or with a fair degree of speed; but believing that the road would be safe, and preferring that if we did go down, to go down handsomely, and without any evidence of timidity, I started with considerable velocity, passed the curve over the creek safely, and was soon out of hearing of the vast assemblage. At the end of two or three miles I reversed the valve and returned without accident, having thus made the first railroad trip by locomotive ever made on the Western Hemisphere."

The first American steam locomotive, called the *Best Friend*, was planned by E. L. Miller, then residing at Charleston, and was built by Messrs. Kemble in West street, New York, for the South Carolina railroad in 1830. It was a small four-wheeled engine, with upright boiler and water flues close to the bottom, with the flames circulating around them. It worked well for about two years, when it exploded, and was rebuilt with a fine boiler. It ran on a railroad (the first ever built in any country exclusively and specifically for the use of locomotives as motive power) which was to connect Charleston with the Savannah River. This road was built on piles—often very high above the ground. The engineer was Major Horatio Allen, who is mentioned in this article, and who was sent to Europe by that company to purchase the railroad iron and three locomotives.

It was upon the Charleston and Savannah Railroad Major Allen planned and constructed the great improvement of two four-wheel trucks for locomotives and passenger cars. This system of double-truck running gear, including the application to the springs, have, with no essential change, ever since been adopted throughout the United States. The first steam-propelled cars in America, running regularly with passengers and freight, were on the Charleston and Hamburg Railroad—now the South Carolina Railroad.—*Troy Times.*

BUFFALO has a petition before its Common Council, asking for an appropriation "to cover the expense of procuring plans and estimates for the proper drainage of the whole city in the most enlightened, feasible, and economical manner, and for the submission of such plans to a board of sanitary engineers to be constituted for that purpose." This is the right way to begin, and the common councils of at least a hundred cities in the United States ought to grant a similar appropriation.

Mr. Lincoln used to tell a story about a big hoosier who came to Washington during the war and called on a street Arab for a shine. Looking at the tremendous boots before him, he called out to a brother shiner across the street, "Come over and help, Jimmy, I've got an army contract."

Specimen Book of One Hundred Architectural Designs.

This book shows a great variety of plans, elevations, and views of cottages, farm houses, details, etc., and is a very desirable book for builders and all who contemplate building. One 8vo. volume, handsomely bound in cloth, mailed to any address on receipt of one dollar. This is one of many instructive books published by Bicknell & Comstock, of New York; which, together with all their other publications, a list of which will be found in the columns of this journal, can be had, postage paid, at the publishers' prices, by leaving orders at this office. Our arrangements are also complete for furnishing any book or journal published in the United States or London; cash to accompany all orders.

CARE OF THE EYES.—The care of the eyes is urged by Arthur Chevalier in a new French work. The use of the eyes, he says, should be regulated by their strength, and they should never be overtaxed. A habit of resting them often during work is recommended. Thus, in reading or writing, stop from time to time, and allow the eyes to wander over surrounding objects. To persist in working after symptoms of fatigue appear is foolish. As soon as the eyes begin to itch, or grow red, or any pain is felt in the eyeballs, work should be discontinued and cold water applied. Do not pass suddenly from darkness into a bright light. All artificial lights are injurious. The author adds: "If a person cannot tear himself away from close work, he can at least vary his occupation. Let him close his eyes from time to time, and take a turn around his room; or, what is better, take a walk in the fresh air: this, even if it be but for a few minutes only, will do him a great deal of good."

TO REMOVE OLD PAINT.—A writer to the *English Mechanic* says: "The cheapest and best solution that I know of I accidentally discovered, and it may be worth while to tell how, though very likely some may know of it. In trying experiments for press-copying some old letters, amongst others I used successfully a solution of one tablespoonful of vinegar and one oz. of washing soda to a half-pint of water. A little of this was spilt on the painted window-sill, and in wiping it up the paint came entirely off, leaving the bare board quite clean. Try it; a gallon will not cost fifty cents.

RAILWAY ACCIDENTS IN 1879.—The Board of Trade summary of accidents and casualties which have been reported to the Board as having occurred upon the railways in the United Kingdom, during the nine months, ending September, 30, 1879, states that the total number of persons killed by accidents on railways during that period was 655, and the number injured, 2,420. The total number of passengers killed was 53, and the number injured 882. No passenger was killed by any accident which occurred to trains, rolling stock, or permanent way. Thirty-one persons were killed and 1,586 injured by accidents on the premises of railway companies, but in which the movement of vehicles used exclusively upon railways was not concerned; and thus the total number of personal accidents reported to the Board of Trade by the several railway companies during the nine months amount to 686 persons killed and 4,006 injured.—*Scientific Canadian.*

KEY HOLE SAW.—The Japanese hand-saw cuts on the pull stroke; so no matter how hard the wood or dull the saw, it will not bend or buckle. It is rather more difficult to saw to line with such saws than with ours, but they have their advantages. Take one of our keyhole or compass saws, cutting on the push or shove stroke, what an aggravating, limber thing it is. Now point the teeth the other way, and you have a tool that will keep stiff, no matter how many knots it encounters, or how dull it gets. In other words, the pull-stroke of 3,000 years ago is the best for such thin, narrow blades.

DIMINUTION OF THE DEATH RATE BY TOWN IMPROVEMENTS.—Mr. James Morrison, of Glasgow, has prepared a series of interesting tables and calculations, showing the decrease of deaths owing to sanitary improvements in the chief towns of Scotland and England. The results are:—In Edinburgh, 4,764 fewer deaths; Dundee, 2,718; Glasgow, 10,590; Leith, 750; Liverpool, 9,336; Greenock, 1,116; Sheffield, 3,900; Manchester, 4,500; Leeds, 2,940; Bradford, 1,638; London, 18,720; and Aberdeen, 456—in all, a total of 61,428 less deaths in six years. In Birmingham, Salford, Paisley, and Perth, the death rate increased.

$290,000—$27,000,000—$1,400,000.—In May, 1878, Sierra Nevada stock was selling at the rate of $290,000 for the whole mine; in September, 1878, it had jumped to $27,000,000, since which time it gradually dropped to $1,400,900. It was worth about the latter figure last month. The shares fluctuated between 90 cents and $270 a share. Gudgeons by the thousand had been hooked, skinned, and thrown out in the interval. There is about as much justification for outsiders investing in such property as this as there would be for a man to take red-hot coal into his hands on the plea of a desire to warm them. But then fools will be fleeced and knaves must live.

COULDN'T MAKE OUT THE BARN.—A woman living near Nashville, named Hannah, is very anxious to marry. One of her neighbors, who knows full well Hannah's ambition, told her if she could look away over to Farmer Sheldon's barn, some three miles off, and see a hen's egg on the gable end of it, she would be married within sixty days. Taking a commanding position, Hannah commenced her gaze of love. After a long and earnest look, she was asked, "If she could discover the egg." "Well," said Hannah, "I can just make out the outlines of the egg, but I can't make out the barn."

THIS life insurance business would exercise a powerful influence over sanitary matters if the instructions of some of the best companies to their agents were made public. Such companies do not push their business in certain cities, and in a few absolutely decline to take risks. If they would only combine and agree to vary the amount of premium required with the annual death rate, where this can be relied on, probably good sewerage and pure water would be seen to be good business investments. No doubt, however, it would seem easier to be less accurate with the death reports.—*Plumber and Sanitary Engineer.*

GERMAN TELEGRAPH ENGINEERS have lately been experimenting with aluminium as a material for telegraph wires. This metal can be easily drawn out to a very much finer gauge than is possible with iron, and its conductibility is twice as great as that of iron wire. Its excessive cost has hitherto prevented its use for the purpose indicated; but it is found that an alloy of aluminium and iron can easily be made, which will produce a wire both finer and stronger and less susceptible to atmospheric changes than iron wire, while it is much superior as a conducting medium.

CLEANING GILT FRAMES.—If possible, remove the glass, lay the frame on a table or work-bench, well wash with warm water and white curd soap, using a tooth brush, but use no soda; clean off with cold water, and dry with an old silk handkerchief, refix the glass, and if your frame was of any account, it will look nearly equal to new.

No Better Advertising Medium.

THE CALIFORNIA ARCHITECT AND BUILDING REVIEW is read by thousands of owners and others interested in the improvement of real estate; consequently its columns offer superior inducements to all dealers in building materials, supplies, and furnishings in every department. A word to the wise is sufficient.

Incombustible Wood.

M. M. P. Folbarri claims that he has discovered a method by which wood of any kind can be rendered incombustible. It becomes, as it were, petrified, without any alteration in appearance. When intense heat is applied to wood so prepared it chars the surface slowly and without flame, but does not penetrate to any extent, and leaves the fiber intact, whereby, in case of fire, the firemen would have no occasion to fear that the materials on which they tread would give way beneath them, if this operation had been undergone by the wood composing the staircases, floors, etc. The following chemical compound is said to produce the result: Sulphate of zinc, 55 lbs.; potash, 22 lbs.; alum, 44 lbs.; oxide of manganese, 22 lbs.; sulphuric acid of 60°, 22 lbs.; water, 54 lbs. All the solids are to be poured into an iron boiler containing the water at a temperature of 45° C., or 113 F. As soon as the substances are dissolved, the sulphuric acid is to be poured in little by little, until all the substances are completely saturated. For the preparation of the wood it should be placed in a suitable apparatus, and arranged in various sizes (according to the purposes for which it is intended) on iron gratings, care being taken that there is a space of about half an inch between every two pieces of wood. The chemical compound is then pumped into the apparatus, and as soon as the vacant spaces are filled up, it is boiled for three hours. The wood is then taken out and laid on a wooden grating in the open air, to be rendered solid, after which it is fit for uses of all kinds, as ship-building, house-building, railway carriages and trucks, fence-posts, wood-paving—in short, for any kind of work where there is any liability to destruction.

A Valuable Secret.

It is related of Franklin that from the window of his office in Philadelphia he noticed a mechanic, among a number of others at work on a house which was being erected close by, who always appeared to be in a merry humor, and who had a kind and cheerful smile for every one he met. Let the day be ever so cold, gloomy, or sunless, the happy smile danced like a sunbeam on his cheerful countenance. Meeting him one day, Franklin requested to know the secret of his constant happy flow of spirits. "It's no secret, doctor," the man replied. "I've got one of the best of wives, and when I go to work she always gives me a kind word of encouragement and a blessing with her parting kiss, and when I go home she is sure to meet me with a smile and a kiss of welcome; and then tea is sure to be ready, and, as we chat in the evening, I find she has been doing so many little things during the day to please me that I cannot find it in my heart to speak an unkind word or give an unkind look to anybody." And Franklin adds: "What an influence then hath woman over the heart of man, to soften it, and make it the fountain of cheerful and pure emotions. Speak gently, then; a happy smile and a kind word of greeting after the toils of the day are over, cost nothing, and go far toward making a home happy and peaceful."

Burglar-proof Mortice Door-Bolts.

These little devices, simple in character and application, afford great security on outside and chamber doors. They are also a great convenience, and the key is always in the door—often when that which turns the bolt of the lock is lost or mislaid. Those manufactured by H. B. Ives, of New York, are equal to any made. They can be had at any hardware store. There has also been left at this office Payson's "Perfect" Sash Lock, an entirely new device. They are simple and perfectly burglar-proof. Imhaus & Triebel, 227 Hayes street, are the agents for the Pacific Coast. Samples can be seen in all prominent architectural offices.

Our Illustration Plates.

PLAN C, represents a two-story city dwelling, requiring a lot with a frontage of twenty-seven feet, or it may be reduced to twenty-five feet. With a greater width of lot, a bay-window can be introduced at the side of dining-room, by changing the location of chimney. If built to occupy the full width of lot, a passage-way can be conveniently provided, under the dining-room section, from which an entrance to cellar can be made. Inside access to cellar can also be made under rear stairs of building. The arrangements are very compact, with no unnecessary waste of space for halls. We recognize the objection that may be raised by some, of the absence of hall connections from front to rear. But this objection is not universal, as many persons do not object to their help passing through the dining-room to answer the front door-bell. But this can be remedied, where the width of the lot will permit greater width of building and the introduction of a hall between rear parlor and dining-room. This would, however, interfere with the present excellent closet arrangement in the dining-room. A similar hall can be made on the second floor. But the two sets of stairs affording double access to the rooms on the second floor in part atones for the absence of greater hall facilities. Such a building can be erected for about $4,000, varying from that figure according to manner of construction and elaboration of finishes. Height of stories, 12 feet 6 inches and 11 feet respectively.

PLATE A, represents a one-story plan, with verandah extending along front and one side, suitable for a country residence. It contains one parlor, three chambers, dining-room, kitchen, and bath-room, with good closet accommodations. The hip roof, as shown, provides space enough above the main story for attic rooms, which, at the low or wall sides, can be made from three to five feet high, with a center height of eight to ten feet. The hall being six feet wide, will allow the erection of a set of stairs in it, so that if desired, as many attic rooms can be laid out as there are rooms on the main floor. This being done, the practical room conveniences can be increased equal to a twelve-room house. As shown, the cost will range from $2,800 to $4,000, according to style and character of finish, etc. The sizes of rooms are marked on the plans.

PLATE B, represents a one-story cottage, with parlor, dining-room, kitchen, two chambers, and bath-room, with closets to each room, except parlor. It is suitable for a twenty-five foot front city lot, leaving an alley-way at the side. Sizes of rooms as marked on plans. Its cost will vary from $1,500 and upward, according to manner of construction and finish. For a country cottage, or on a lot of greater width, the dining-room can be extended sideways two, or three, or four feet, or bay-windows can be added.

The other plates, by Messrs. S. & J. C. Newsom, represent a one-and-a-half-story residence, intended to be erected at Piedmont, near Oakland, Alameda county. The arrangement and sizes of rooms, halls, etc., are all shown by the plans. The equipments and finishes are designed to be good, including hot-air furnace and all modern improvements. The total cost will be about $4,500, not including the mantels and mosaic tiling.

Real Estate Market.

We clip the following from Magee's *Real Estate Circular* of May 1st, showing transactions for April, 1880:

A material improvement is noticeable in real estate, especially in the demand for business property. This demand does not extend beyond property that is central and paying well; all vacant and prospective business property is still unsalable, as is also all property north of California street. Buyers will only buy the very best property; where they have to look to the future for their recompense, they will not buy as a rule. Mission property continues so dull of sale as to be almost neglected; the Western Addition, with its cable roads and new houses, has the call for the present, although the Mission has many advantages over it, in climate, location, and the absence of so many large cemeteries. There are strong signs of a revival in outside lands, in the vicinity of the Park entrance and westward, along the Park front. The Geary street road has given a great impetus to lands out along and contiguous to its course, and the Haight street line is anxiously looked for, because of the similar effect which it is sure to exert. The total number of sales made in April was 207, of the total value of $1,439,531.

LARGE REAL ESTATE PURCHASES BY RICH MEN.—Mr. Chas. Crocker has purchased from Senator Sharon the 50-vara south-west corner Bush and Sansome, with the Cosmopolitan hotel building thereon. The rents are about $3000 per month. The building is worth about $110,000.

[We are informed that Mr. Crocker intends to convert the Cosmopolitan Hotel building into stores, all of which are engaged by leading firms in the dry goods, clothing, fancy goods, and other similar lines. The facts presented in this connection indicate that there are lively times in prospect for the mechanics of this city. The prospects ahead will not only prevent the further departure of building operatives from San Francisco, but will induce the return of many who have gone away for want of employment. The real estate interest certainly presents a cheering condition of things for the future.]

Mr. A. Sutro, of the Sutro Tunnel, has purchased within a month, improved business property on Market street to the extent of $245,000. These men do not, like so many of our *very* enterprising millionaires, prefer United States four per cent. bonds to San Francisco real estate. A few men of shrewdness and means like Mr. Charles Crocker, Mr. Hopkins, and Mr. Sutro, will make a market for real estate here. They will put a little much-needed back-bone and courage into our timid, jelly-fish, disaster-prophesying men of means, who have done nothing but whine and lament for the past two or three years or more.

An agreement has been made for the sale of the 50-vara south-east corner of Market and Beale streets. The daily papers reported the price at $137,500. It was not nearly so much. We are not yet at liberty to say what the actual price was.

The lot and old two-story frame building south-west corner Market and Sixth—50 on Market by 80 on Sixth—has been sold for $72,000.

The property on south-east side Market, 140 feet north-east of Second, 50x155 in size, to Stevenson street in rear, has been sold for $102,000; the building cost $47,000 some five years ago; it rents for $900 a month. This property was exceedingly cheap.

It is rumored that Mr. Phelan, owner of the most of the block on Market, Dupont, and O'Farrell, will, about June 1st, erect a first-class block of buildings on his property there. The lot has a frontage of 324½ feet on Market, by 313⅜ on O'Farrell, and about 30 on Dupont street. The improvement of this property will cost, we suppose, $350,000. [We hope that there is some truth this time in this oft-repeated story of Mr. Phelan's intention to improve property. The same report has been circulated about once a year during the past five years. We shall be pleased to know that Mr. Phelan, who, only a short time ago, according to his sworn statement, was not the possessor of a dollar in cash, but had an overdrawn bank account, has so speedily recovered from his embarrassments as to be able to manage so large an improvement. ED.]

A solid three-story and basement brick building is about to be erected on the lot north side Market, between Davis and Drumm, adjoining Gen. Williams' new block of buildings there. The lot has a frontage of 54 feet, by an average depth of 110 feet; it runs back to and fronts on California street.

The property south-west corner Sacramento and Octavia streets—south 67½x137½—has been sold for $25,000 net. The daily papers incorrectly reported the price to be $27,000; there is an elegant new mansion on the lot, which cost $16,000; the location is very commanding, and is opposite Lafayette square.

The vacant lot south-west corner Van Ness avenue and Austin, (between Pine and Bush) 60x100, has been sold for $11,250; new houses are about to be erected on it.

The lot south-east line of Bryant, 125 feet north-east of Second, 150 feet front by 160 feet in depth, back to Frederick street in rear, has been sold for $18,750. A three-story solid brick warehouse for the storage of California wines is to be erected on the lot, at a cost of $25,000 or $30,000.

The one-story brick store, running through, and lot, 25x119½, on south side of Clay, through to Commercial, has been sold for $9,100.

The 50-vara, north-west corner of Jackson and Webster, which was sold for $6,600 about two months ago, has been resold, we are told, for $8,000. The buyer pays no cash down, but is to build houses on the lot, to be sold on the installment plan.

The following property has been sold for about $10,000; 318 feet on north side of Carl, 339 on south side of Frederick, and 275 feet west side of Clayton; also, 314 feet on south side of Carl, 399⅛ feet on

west side of Clayton street; 310¼ feet on south line, and 285 feet on west line; there are nearly ten 50-varas in the tract, which lies in the flat ground south of where the main Park begins, near Myers' nursery. None of the streets are graded; the land is ten to fifteen feet below the grade.

Last month was an unprecedentedly dull one in real estate loans. The savings-bank and private loans only amounted to $348,347, while the releases had a value of $1,095,791. The supply of money at the Hibernia Bank is not growing less; it is still very large, and the rate is yet the now old and cheap one of eight per cent., the bank paying the mortgage tax. The Savings Union reports increased inquiry for loans, and that while the rates are formally unchanged they are stiffer; but the majority of applications are rejected by that bank because borrowers ask larger loans than it is willing to grant; this, indeed, is the general complaint at all of the banks. The German Bank reports no change of rates; its funds on hand are increasing, through increase of deposits. As summer advances, and with it the certainty of dry weather, we may look for increased demand for money. Many owners will be building, and all of them have not sufficient cash on hand for their needs.

Market Report.

A better feeling seems to prevail amongst our lumber merchants, and they are looking forward to a much better market than they have enjoyed for some time. Below will be found a correct list for the month just ended.

OREGON PINE.

Common Rough, up to 40 feet, per M feet			$18 00
"	40 to 50	" "	19 00
"	50 to 60	" "	20 00
"	60 to 70	" "	21 00
"	60 to 80	" "	22 00
Refuse Rough			14 00
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over, and Stepping		per M feet	30 00
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring		per M feet	30 50
Rough Clear for flooring, $1 less than above rates, per M feet.			
Second quality Flooring and Stepping, per M feet			21 00
Ship Plank, rough		per M feet	25 00
"	planed 1 side	"	28 00
"	planed 2 sides	"	30 00
Deck Plank, rough		"	28 00
"	dressed	"	32 50
Laths		per M	3 50

REDWOOD.

Rough Merchantable		per M feet	$18 00
"	Refuse	"	14 00
Surface, No. 1		"	30 00
Surface, 1 x 8		"	28 00
"	1 x 6	"	28 00
"	No. 2	"	22 50
Rustic, No. 1 1 x 8		"	28 00
"	No. 2	"	25 00
"	1 x 10	"	30 00
"	short, 8 to 10 feet	"	25 00
"	" under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over		"	27 50
"	" 7 to 11 feet	"	25 00
"	" under 7 feet	"	20 00
"	" No. 2	"	20 00
"	Beaded, 12 feet and over	"	27 50
"	" 7 to 11 feet	"	25 00
"	" under 7 feet	"	20 00
Half-inch Surface		"	27 50
Pickets, fancy		"	20 00
"	rough, pointed	"	16 00
Pickets, rough, square		per M feet	$14 00
Siding, ½-inch		"	20 00
Port Oxford White Cedar		per M feet	$30 00 to 45 00
Sugar Pine		"	30 00 to 50 00
R. W. sawed shingles		per M	2 00
Battens, ½-inch			75

HARDWARE AND NAILS.—We note the following reduction.

10 to 60 pennies, are quoted at			$5 50
8	" " " "		5 75
6	" " " "		6 00
5 and 4	" " " "		6 25
4 and 5 pennies, brad heads at			$7 25
6	" " " "		7 00
8	" " " "		6 75
10 and upward	" " " "		6 50
3 penny fines	" "		8 50

DOORS, SASHES, BLINDS, ETC., remain as last reported. No considerable activity in demand justifying a rise in prices, they remain as heretofore quoted, and current prices being so near cost of production, there is no room for abatement.

GLASS and PAINT materials remain about the same as reported last.

Building Intelligence.

The number of contracts entered into during the month of April has not been as great as we hoped it would be; but this can be accounted for upon the presumption that many property owners had abandoned the idea of building, and time to reconsider such determination was a necessity. But the fact is well established that there has been quite a stir in building and real estate matters, and the signs of the times indicate greater activity in the near future. There have been more clients in architects' offices, discussing the question of plans, during the past thirty days, than during any preceding ninety days within the past three years. The report appearing in these columns, in reference to the "Real Estate Market," clearly indicates the sentiment of some of the moneyed men of this city. It is a long while since so much property has changed hands within the same period of time, and experience teaches that change in ownership generally means change in the condition of the property bought and sold, either by repairs and alterations, or new improvements.

Many of the architects report improved prospects and increased number of orders for plans.

We strive to render this department of our journal full, complete, and reliable, but labor under the disadvantage of tardiness on the part of some of the architects in this and neighboring cities and towns, to furnish us with reports of transactions. We shall be pleased, and we again request, that every architect on the coast send us, for publication, a full statement of contracts entered into up to the 28th of each month, except that from and after July next we intend to have this journal ready for delivery on the first of the month, which will necessitate the receipt by us of all communications by the 25th of each month. There is a mistaken idea with some, not to render any report when only one or two jobs are on hand. This is an error. It detracts nothing from an architect's standing or merits, because but little work is offering in his particular case. It often happens that leading offices are slack, when others are full; and we fail to discover any good reason for the exercise of undue delicacy on the part of any architect, in reporting a limited amount of work. The *general public*, as well as interested parties, seek this information, and no harm can come to any one by the publication in full of statements showing the condition of the building interests of this city and coast.

SAN FRANCISCO.

One two-story frame building, on Ellis, between Laguna and Buchanan. Owner, A. A. Fisher; architects, McDougall & Son; contractor, John Furness. Cost, $3,600.

Four-story and basement brick building, on east side of Stockton, near Post. Owner, Mr. Boucher; architect, J. Marquis; contractor for brick-work, —— Watterson. Cost, $20,000.

Additions to buildings, 822 Turk st. Owner, J. F. Byxbee; architect, J. Marquis; contractors, Norton & Walker. Cost, $2,000.

One two-story frame building, on Post st., between Laguna and Buchanan. Owner, Mr. Alsen; architect, A. Hildebrand; contractor, M. Clausen. Cost, $3,600.

Additions to building on corner of Market and Gough sts., to be used as a shoe factory. Day's work, and cost not determined.

One two-story and basement frame building, on Haight, between Gough and Octavia. Owner and builder, A. Watt. Cost, $3,500.

Three stores, with dwellings on Larkin, and three dwellings on Tyler st., on the corner. Owner, P. Spreckles; contractor, F. Klatt. Cost, $22,000.

Store and dwelling on northwest corner of O'Farrell and Buchanan. Owner, Mr. Bensen; contractor, F. Klatt. Cost, $35,000.

One two-story attic and basement house, on Franklin, near Turk. Owner, M. Englander; architect, W. Winterhalter. Cost, $11,000.

One two-story and basement frame building, on Oak st., near Gough. Owner, Mrs. Hildebrand; architect, W. H. Bayless. Cost, $4,200.

OAKLAND.

One-story and basement brick building, on Eleventh st., between Broadway and Washington. Owner, Thos. Smith; architect, W. Kirk; contractor for brick-work, —— Remillard. All other work is done by the day. Cost, about $8,000.

Additions to a frame building situated on Telegraph Road and Knox st. Owner, C. F. Robbins; architect, Clinton Day; contractor, J. S. Burkee. Cost, $3,200.

Additions to frame building on the corner of Jackson and Fifteenth sts. Owner, Capt. J. N. Knowles; architect, Clinton Day; contractor, Robert McKillican. Cost, $5,500.

MENLO PARK.

One two-story frame building, at Menlo Park. Owner, Mrs. Coleman; architect, A. Laver; contractor, Chas. Ackerson. Cost, first contract, $43,000.

ALAMEDA.

One-and-one-half story frame building on Broadway and Narrow Gauge Railroad. Owner, —— Laphan; architects, S. & J. C. Newsom. Day's work. Cost, $1,000.

Four-story brick building, on Park st; size, 60 ft. x 60 ft. To be used by the Alameda Water Co., as a tank building. An iron tank will be erected on top of building, 9 feet deep, by full size of building. Architect, W. Patton; contractor, Jas. H. Corry. Cost, $42,000, without tank.

Plans are prepared for a two-story frame building, to be put up at Newark, by C. H. Harker. Architect, J. Sherwin. Probable cost, $2,500.

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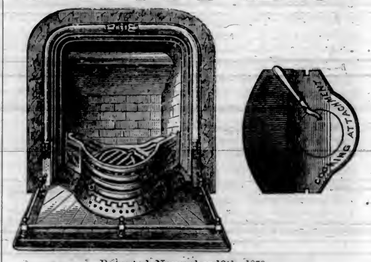

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The California Architect and Building Review.

VOLUME I.
NUMBER 6. } SAN FRANCISCO, JUNE 1, 1880. { $1.50 per Annum, in Advance. Single Copies, 15 Cents.

The California Architect
—— AND ——
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE
SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

Sent to any part of the U. S., postage paid, at $1.50 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or mo ives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matt rs generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion	$1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion	1 25
On other inside pages, per square, each insertion	1 00

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A Card from Architects.

Believing that a well and ably conducted journal, devoted to Architectural, Mechanical, Sanitary, Scientific, and other kindred matters and subjects, is a necessity in this city, and judging from what has appeared in the QUARTERLY ARCHITECTURAL REVIEW, published by Messrs. Wolfe & Burnham during the current year, both in illustration plates and reading contents, we are led to the belief that the CALIFORNIA ARCHITECT AND BUILDING REVIEW, proposed to be published by the San Francisco Architectural Publishing Company from and after January, 1880, will be worthy of general support and encouragement, and that it will supply a long-existing want on this coast. *We therefore pledge our cordial sympathies personally, and hope that the enterprise will receive kindly recognition and liberal support from all Architects and Builders on the Pacific Coast, and from the public generally.*

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JOHN A. REMER.

Our Position and Vindication.

We cannot too heartily express our appreciation of the many kindly and generous manifestations of approval and encouragement received from a majority of the most prominent and meritorious architects in this city in reference to this journal. We should be pleased to name them personally, but prefer to avoid every act which might be construed into invidiousness. For it matters not how carefully and truthfully a statement may be made, there are always those who are ready to torture the very best that can be said, and the purest of language and motives, into forms, features, and meanings entirely at variance with anything thought of or conceived by the parties making the statement. This wickedly ungenerous disposition is by far too general in this community, arising in many cases from a lack of intellectual competency to comprehend facts in a liberal spirit, or to accept statements as true, however honestly and virtuously made, if at variance with their own contracted views or personal prejudices; while others entertain this disposition from positively unkind and improper motives.

We are led to these remarks because *several* of our personal friends have stated to us that they have heard certain architects say: "Well, the journal is good enough, but it is only run in the interest of the office from whence it emanates," or words to that effect. That it is a "personal business publication," etc.

In the sense in which such remarks are intended to apply they are unwarranted insinuations, and those who make them simply illustrate their peculiar incapacity of mind and nature to exercise fair judgment toward others. We challenge such, and all others of like turn of mind, to point out a single article or advertisement appearing in this journal since its first publication as a monthly, wherein special prominence has been given to th architectural business of this office. We have carefully avoided everything in that direction, and stated much less than we might have done in regard to our professional engagements. We have gratuitously inserted monthly the names and addresses of all architects known to us as having offices; and certainly not for any special advantage to ourselves, we have used all due diligence through paid assistants visiting the various offices in person, to gather information in reference to "Building Intelligence," as only a few keep the matter in mind, and re.der us their monthly statement, without having their attention specially directed to the matter; while a second few—very few—carry personal feelings and prejudices to the extent of refusing to give any information, when asked, concerning improvements under their control.

Whether the things complained of are justified by professional rules or correct business practices, we leave our readers to judge. We are the more surprised because we have not had nor have we any personal issues with fellow-architects, but on the contrary have received numerous assurances of kindly sentiments, and expressions of good will and wishes from a majority of those practicing the profession in this city. From this state of facts we can draw no other conclusion than that the parties referred to have allowed the peculiarities of their dispositions and personal feelings to control their judgments and expressions.

Certainly no journal was ever started under less favorable circumstances—when extreme dullness pervaded all departments of the architectural and building business—nor any with broader or more liberal purposes and motives. We invited all who were in any way interested in building operations to use our columns for the presentation of their views upon pertinent subjects, and urged upon architects to furnish us drawings for illustrations; and so far as this has been done, the names of the parties have appeared, and the benefit of their productions has been reaped by them, and not ourselves. We have always been free to give prominence to matter prepared by others, and there is no reason on our part why the name of every architect in the city has not appeared in connection with cuts or articles of their own preparing. And we again repeat the invitation, and ask gentlemen to meet us upon the broader ground of correct judgment and views as to our purposes and designs.

We assert and claim that the attributed motives are unjust and untruthful, and we hope that members of the profession and all others will rise above all petty feelings of envy or jealousy, and do us the justice to ascertain the correct motives of the management of this journal, and not ascribe to us those which are simply secondary and subservient.

If, as the result of our hard efforts and diligent toil, we have succeeded in producing and establishing a journal which is everywhere and by all well spoken of, the architects on this coast should feel pleased. One of the principal considerations which led to the venture was the belief on our part that such a journal was needed, and hundreds have congratulated us upon these grounds. Many a hearty shake of the hand has accompanied the statement: "I am glad that some one has had the courage to undertake so necessary a work;" "I wish you all success," etc.

Again disclaiming all improper personal or business motives beyond those which ought of right to attend the laborious efforts required in the establishment of such a journal, we hope that we will be spared all incorrect and undeserved insinuations and imputations intended to misrepresent the aims and purposes of the management of this "so-much-needed publication."

We also regret the necessity for this article, as we are satified that the better thinking and more generous minded of the profession entertain kindly feelings and correct judgment toward us, and that their professions of friendship are sincere, rising above the meanness and illiberality which has induced the objectionable insinuations complained of; but as names are not mentioned, our readers will be able to ascertain, so far as they desire to do so, to whom reference is made only by personal interview with gentlemen in the profession in this city. We hope that in time, if not immediately, there will be but one common opinion, and that of the most favorable character, entertained of this journal. We shall strive to merit the confidence of all, and by continued labor and effort seek to correct all defects, and improve it in every department.

Brick Foundations.

There can be no question as to the superiority of brick over wood foundations for frame buildings. There is an absence of consistency in the use of the latter. Buildings, as a rule, are erected with a view to their remaining in service scores of years, and to this end, the most indestructible material should be used in their foundations. And the well-known fact that there is no wood found on the Pacific Coast, used in common building operations, that will withstand decay for any great number of years, is a strong argument in favor of the more imperishable materials. The extra cost of brick over wood generally inclines owners to the adoption of the latter. But, everything considered, the economy practiced in such cases is not well sustained; for it often happens that owners soon become dissatisfied, and frequently, before rot and decay develop themselves, substitute brick for wood. And if this is not done, in a few years the necessity for such a course becomes imperative. And however much care may be exercised in the renewal of foundations, more or less damage occurs to the plastering of buildings, if in no other respect. Besides this, a brick foundation adds largely to the value of the improvement, and facilitates the sale of the property, should disposal be desired. Not infrequently, parties refuse to purchase frame buildings erected on wood foundations, unless at reduced prices. These considerations, and the sense of satisfaction enjoyed by owners at the knowledge of the fact that the foundations of their buildings are reliable and sure, should induce the use of brick whenever within the range of possibilities.

Those Cheap Dwellings.

The *Pacific Land Journal and L. S. Gazette*, in its issue for June, refers to our criticisms of plans for "cheap buildings," appearing in the *Evening Bulletin*, and does us great injustice—perhaps not designedly, but most certainly so inferentially, inasmuch as it sums up the whole matter with, "There is a great deal of jealousy among architects, and it is to be expected that such a work as Mr. Pelton is doing for the *Bulletin* would be severely handled by ALL *other architects*." This is a reflection upon the entire profession which the truth does not, in our experience, justify, especially in the case before us, as there is nothing in the class of plans referred to to create feelings of jealousy in any one, particularly at the rates of compensation mentioned in the *Bulletin's* article; unless our neighbors intend to convey the impression that the profession is composed entirely of persons of decidedly jealous dispositions. While we are forced to admit that *individual* jealousies do exist among a certain class and number of the architects in this city, we at the same time know that there are many honorable gentlemen in the profession, who are not governed by any such motives; and to intimate that the above quotation applies to "ALL *other architects*," is a very sweeping assertion, and a pronounced judgment upon the motives of a class of men, who should, if they do not, rise above every feeling tinctured with anything less than fair, just, and honorable motives and purposes. And as far as the management of this journal is concerned, we very positively declare the assumption of our neighbor to be devoid of any and all correctness. We presented a fair, just, and unprejudiced review of the matter, without the slightest feeling of jealousy toward the *Bulletin* or its architect; and had the plans noticed by us presented any special merit, we would gladly have awarded them commendations; or if the statement of cost had been at all consistent, or correct in amount, we would cheerfully have so stated. But the palpable impossibility of erecting such a building within the lines of a 20-foot lot, "leaving an alley way of four feet on one side," was so clear that we could only have supported the statement at the sacrifice of truth. And in reference to the stated cost, we of our own knowledge knew, and do know, that there was a material error, as the sum named would not then, and certainly will not now, cover the cost of such a building, allowing *nothing* for carpenters' labor.

It is unfortunate that improper motives are so often and generally attributed to persons making conscientious statements. In almost every instance, impugnings take the place of credence, and no man, however truthful and pure he may be, is safe from misinterpretations of words, acts, or motives. And further, plain statements of adverse facts are, as a rule, set down as persecution, and guilty parties often find protection behind this latter-day bulwark. It has come to pass that resort to this protection is next to universal. Truth and stubborn facts are often overriden by this subterfuge. It is the prominent defense and plea for sympathy in the numerous notorious cases at present before our courts, and justice is often diverted by the cry of persecution.

We make this reference, because by our contemporary's theory, any fact that we might state in reference to "cheap buildings," by the *Bulletin* and its architect, or any one else, if not in terms of approval, would be liable to rejection; and although we might state facts as correctly as possible by the use of the English language, their unimpeachability by the light of truth, would be no protection to them. Neighbors, friends or enemies, say what you please of us, but spare us the infamy of being governed by the petty and discreditable motive of jealousy. It is small in any one, under any circumstances, and to honorable architects and journalists, it is simply contemptible. We have not mentioned the *Bulletin's* "second of a series," for fear that a fair criticism in that case would lead to the accusation complained of. But, as we are thus led in that direction, we will simply say that the *Bulletin's* No. 2 is handsome to those who consider it so; but in regard to the stated cost, we say most emphatically, that such a building cannot be erected in any sort of a *workmanlike and substantial manner*, for the sum named; and we question the propriety of misleading public opinion in a direction adverse to all mechanical interests and principles. Carpenters and builders require proper compensation, to enable them to support their families, and any attempt to secure their services at less than a right and proper compensation is both unwise and wrong. And we fail to discover the correctness of a policy which demoralizes the interests of the working classes, who as a rule, barely earn enough to buy bread and butter for themselves and those dependent upon them. Nor is there any right and proper argument in the proposition to extract such labor from those who are dependent upon their daily toils for a mere living, to *help* some one else who is poor, *yet in possession of a lot, and nearly money enough besides to build him a home*. We say to such wait a little longer, practicing economy, until a sufficient sum is acquired to erect a building as it *should be*, and pay what its erection in a good and proper manner is worth, doing no injustice to any one.

Again, it is not good advice to induce men of small means to sink the little money they may have, in a mere trap of a building—a construction wherein every proper mechanical principle must be sacrificed to secure present economy. A well-built building, in the erection of which due regard has been paid to strength, durability, healthfulness, etc., "is a thing of beauty and a joy forever," but a "botched up," ill-constructed concern, is abominable; and hundreds of owners, after having made mistakes of this character, have wished that their lots were unincumbered.

Rights of Employers and Employees.

The Supreme Court of the United States has decided substantially as follows in respect to the rights of employers and employees, touching the proprietorship of new inventions:

When a person has discovered a new and useful principle in a machine, manufacture, or composition of matter, he may employ other persons to assist in carrying out that principle; and if they, in the course of experiments arising from that employment, make discoveries auxiliary to the plan and preconceived design of the employer, such suggested improvements are, in general, to be regarded as the property of the party who discovered the original principle, and they may be embodied in his patent as part of his invention. Doubt upon that subject cannot be entertained.

But persons employed, as much as employers, are entitled to their own independent inventions; and if the suggestions communicated by the persons employed constitute the whole substance of the improvement, the rule is otherwise, and the patent, if granted to the employer, is invalid, because the real invention or discovery belongs to the person who made the suggestions.

The doctrine held by the Patent Office is, that an inventor who is an employer, has the right to avail himself of the mechanical skill of those whom he employs to put his invention into practical form. If the inventor-employer gives general directions to his workmen to produce a certain machine, the combination, or parts, or arrangement produced, belongs exclusively to the inventor-employer, and the workman has no patentable rights therein.

But when a workman himself suggests and invents an improvement without previous direction from his employer, the invention belongs to the workman; he can patent it, and the employer has no claim thereon, although the device may have been made in the shop of the employer, with his tools, and during time belonging to him.

SAWDUST MADE VALUABLE.—A United States patent was granted March 25th, 1880, to W. Grossman, of Petersburg, Va., for making railroad ties, fence posts, paving and building blocks, etc., out of sawdust. This artificial wood, it is claimed, can be made fire and water-proof, and is of such a character that no insect will attack it. It is claimed that it will take a high polish and stand a higher pressure than ordinary wood. Also, that it can be cut and sawed, and that nails may be driven into it. As the process of making it is declared to be very simple and cheap, it is possible that it is destined to bring a revolution in the saw-mill business; at least it promises to relieve the saw-mill men of much trouble concerning the accumulation of sawdust. We shall await the particulars of a practical test with interest.—*Carpentry and Building*.

Our No. 5.

Owing to absence from the city during its publication, a few immaterial errors and omissions occurred, to which we direct attention.

ARCHITECTURE, by Montenede, from the *Paris Exhibition*, is represented on page 2—inside of front cover—and should have been so entitled. This cut appeared in the April number of the *Quarterly Architect and Review*, and was reproduced for the purpose of giving our patrons an additional handsome picture. It was designed to ornament the tomb of "*Carlo Sada*, of Turin, the architect of the Palace of Italy." In one of our articles we referred to an invention for a certain purpose, and mentioned the name of the establishment where the same could be obtained. Some of our advertising patrons interpreted this as a special notice or *puff* for that firm. We refer to this simply to say that all such references on our part to particular devices are made entirely in view of the understood merit of the thing mentioned, and not for the purpose of giving the use of our columns to the special benefit of particular parties. If our best friend or severest adversary were to present for notice an invention that we considered a "good thing," we would be equally free to recognize merit in either case. And we repeat what we have heretofore stated, that we shall refer to any matter, device, or invention placed under our notice, for what we consider it worth, at the same time recognizing that we are liable to err in judgment. And we trust that our readers will so interpret the contents of this journal, as we propose and desire to be equally just and fair to all; and we hope that seeming departure from this rule will not be ascribed to any unfair disposition or intent on our part.

We certainly have good cause for self-congratulation in the fact that having now issued our sixth monthly number, in addition to the four quarterly editions of 1879, we have made so few mistakes, and so many warm friends. It was reasonable to presume that a venture of this kind, undertaken by inexperienced hands, with exceedingly limited sources of information and assistance in any direction, that great blunders would follow. But so far complaints of any sort have been so few, that we are encouraged to hope that the future of this journal will prove an exceptional success.

AT A MEETING of the Executive and Advisory Committee of the American Public Health Association at Washington, D. C., May 6th, 1880, called for the purpose of considering the legislation now pending in Congress in relation to Public Health, the following action was taken:

Resolved, That the Executive Committtee be instructed to urge upon Congress the importance of passing at the present session the bills for calling an International Conference relative to yellow fever, and for increasing the efficiency of the National Board of Health now pending and as reported from the Special Committee on Epidemic Diseases, of the Senate.

Resolved, That the first section of the bill just referred to is considered specially important to the maritime interests of South Atlantic and Gulf ports of the United States, as tending to secure communication with interior communities, with safeguards uniform in their operation, and to relieve such communities from a large part of the expense and annoyance of separate and local action; and that therefore this section should become law.

Resolved, That while this first section is considered thus important, the remaining sections of the bill are of even greater importance, and should be enacted as law, even if it is necessary to omit the first section to obtain such enactment.

Resolved, That it is highly desirable that Congress should, without further delay, authorize the printing, with the necessary illustrations, of the Report of the National Board of Health, with the Appended Documents and the Reports of the Yellow Fever Commissions in the yellow fever epidemic of 1878.

[ATTEST] J. S. BILLINGS, President.
E. H. JANES, Sec'y.

DURING the past four years the New York Department of Public Works has added to the Croton water service 70 miles of pipes, making 480 miles. The Croton aqueduct supplies 95,000,000 gallons a day. The elevated railroads consume over half a million gallons daily.

Sacrifice of Human Life.

In the great whirl of business life, and the universal desire of mankind to acquire wealth, but few stop for a moment to consider at what cost riches are sometimes secured. Hundreds of thousands of men and women are daily being rapidly hurried on to early graves—on their part simply to secure the common comforts of life, while their employers reap fortunes from the risks and sacrifices of the employed.

Our recent visit to Virginia City illustrated satisfactorily to us that the millions of dollars in coin extracted from the earth, is to a large extent the price of blood. To say nothing about the happenings which have been the direct cause of death to so many, the unnatural strain imposed upon tens of thousands of the miners is calculated to wear away the stoutest constitution, and shorten life. Particularly is this so in the heated mines, where men often become prostrated and helpless from the impure atmosphere, and have to be hoisted out of the works for resuscitation. We do not propose to write up a horrid picture of what is constantly occurring, or what has occurred; for mine managers have not been indifferent to the facts of the case, but realizing them and the necessities involved, have every known appliance in daily use for supplying the deep chambers beneath with fresh air, without which it would be impossible for men to live the "shift" through. Men may and do stand this sort of thing for years; but every hour that unnatural strains are imposed upon men consumes permanently just so much of their vitality and strength, and the sooner brings the sinewy frame down to enfeeblement and death. Not only in the heated mines is this great tax upon human life imposed, but in all underground works where men are deprived of pure atmosphere, the conditions must be unnatural, and therefore, injurious to the health of those so engaged.

But mines are not the only source of life wasting. The massing together of large numbers—or few—of operatives in badly ventilated factories, where they breathe not only confined and impure air, but intermixed with it a large amount of metallic films, or other particles thrown off by friction or manipulations in manufacturing devices of various kinds, to which is added the unclean dusts which arise from various sources, the oily vapors from swift-running journals, and endless other contaminating means, every one of which is more or less injurious to continued health and strength. True, men endure all this, and their natures to a certain extent become accustomed to it, but it is contrary to every known principle and law of health and life; and while many pass to old age under such conditions, the lives of hundreds of thousands are shortened to gain bread for themselves, and wealth for their employers. But it is not our purpose to suggest an abandonment of pursuits which produce these effects; they have become necessities, and the work must be done by some one; and while men and women are necessitated to submit to such conditions, a weighty duty devolves upon those who own and manage such interests and establishments, to do all that can be done to secure the comforts and protect the health and lives of those who are compelled to labor for their daily sustenance, if even at the peril of their lives.

A LARGE BLOCK OF SANDSTONE.—At the Dark Hollow stone quarry, near Bedford, O., one of the largest stones ever blasted in this country was "lifted" a week or two ago. The stone is 40 by 50 feet square, and about 30 feet thick, and it required 185 slip wedges to make a successful blast. When cut up into pieces it will make nearly 300 carloads of building stone. Immense blocks of stone are frequently taken out of the quarries here which would make the stones on Solomon's Temple mere pebbles in comparison. Its weight was estimated to be about 6,000,000 pounds.

AN IMMENSE BLOCK OF GRANITE.—What is said to be the largest block of granite ever quarried in the United States has recently been taken from a quarry at Vinalhaven, in Maine. It is 59 feet long, 5½ feet square at base, and 3½ feet square at the top. It weighs from 75 to 100 tons. It cost $1,700 to blast it and move it to the shed where it is to be finished. It is to form the shaft of the monument to Gen. Wool, to be erected at Troy, N. Y.

Very Great Mistakes.

Very great mistakes are often made by owners in arranging for the erection of buildings. Sometimes they know, or become acquainted with some *honest mechanic*, to whom they are induced to entrust the whole matter of plans, specifications, and construction, only to repent it when it is too late. The party to whom the proposition is made, elated with the splendid opportunity opened up to him, and full of conceit in his own abilities, uses all possible means to secure and consummate the arrangement, and plans are made—*and such plans!*—and the work progresses. Once under way, there is no stopping it, and step by step the owner discovers and realizes, one after another, grievous errors, which are difficult to remedy. And when the building is completed, he simply feels disgusted. Imperfect arrangement, poor construction, homely design, and incurable defects crowd upon him, as the reward of his folly; and regrets for his error haunt him day and night; but it is too late—the building is erected, and he must endure its defects. But, the first general dissatisfaction is primary and bearable, compared with after experiences in their various details. The plumbing work has, perhaps, been done by some tenth-rate man—some spoiler of good materials—for there are, in San Francisco, some of the least qualified men to be found in the United States, who call themselves "practical plumbers"—men who have not the slightest idea of what constitutes a really good job, not to say first-class. Nor would the payment to such men, of ten times the value of the work done, secure skillful workmanship at their hands, for the simple reason that they do not possess, and therefore cannot practice mechanical skill and abilities. And owners who employ this class of plumbers are unfortunate indeed. But to continue, defects show themselves in all connections. Pipes are put in of insufficient capacity, wastes entirely too small, and sometimes so cramped in making bends as to diminish their practical size one-half. "Tinker," instead of "wiped" joints; leaks at various points and places; wetting and spoiling ceilings and walls, and not unfrequently carpets have to be torn up to escape the deluge. All this is followed by a still more serious defect—one affecting the health and lives of the occupants, viz: imperfect or insufficient traps, pipe-ventilation, bad sewerage, etc., resulting in the distribution of the vicious and poisonous sewer-gases through the building, and as a consequence, the ill-health and sometimes *premature death* of loved ones. The intended pleasant home is thus transformed into a mere fume-castle, a disease-breeding charnel-house, not fit for human habitation. All this is followed by continual repairing, tearing up of floors, removing finishes to get at concealed places, etc.; and for all this the owner has been made to pay a good round price, amounting to more, as a rule, than it would have cost him to have secured a good building, erected under the superintendence of a trustworthy architect. But bad plumbing-work is not the only serious defect which so often occurs in such cases. The foundation is often wholly insufficient, and settling occurs, with any quantity of ugly cracks in the plastering. The structure is perhaps so poorly braced that the edifice trembles with every wind that blows. And when the rains fall, leaks are found in every exposed window and opening, and the roof itself yields its proportion of internal wettings. But we will not continue our enumeration of "bad things," as to do so would consume columns of space. Such cases are known to all architects, and many a "served him right" is indulged in, upon the principle that a competent physician laughs at the sufferings of a patient whose pains and agonies result from self-treatment or quack-practice, and the educated lawyer smiles when his client gets himself into a *terrible fix* by intrusting his case to some pettifogger, or who tries to work out the intricacies and problems of law by his own self-conceived legal ingenuity.

DR. N. V. SPEECE says, in the Ohio *Medical Recorder*, that not one-tenth of all the public school buildings of Ohio have anything like a perfect system of ventilation, and that more than three-fifths are terribly overcrowded. He has noticed, for several years past, upon the opening of the schools in his own town, a notable increase in sickness among the children, and in a majority of instances the disease has been of the infectious character.

Benefits of Good Tools.

There is an old saying to the effect that "it takes a good workman to make a good job with poor tools." So it does, and there have been many triumphs, recorded and unrecorded, of brain and skill over seemingly insurmountable obstacles. It is a satisfaction to compass a result with apparently inadequate means, and the mechanic who does it is justly proud of his success. But working with poor tools is never certain to produce good results, however great the skill and inventive the brain. Misses are made as well as hits, and even the most self-assured workman feels safer with good and applicable tools. No workman can afford to risk his reputation and success with poor tools; there is so much risk of a failure and such anxiety for the result, that even if success is attained it has been at the expense of time, thought, muscle and trouble that robs it of half its gratification.

The time has gone by when the workman was expected to "make something out of nothing;" when one instrument or appliance was made to do duty for another, and "make-shifts," their origination, use and application to the job in hand, were part of the kit of the workman. The constant and growing improvement in tools and labor-saving machinery has not only increased the profits of the manufacturer, but lightened the labors of the workman. The machinist who learned his trade thirty years ago would now be ashamed to resort to the wretched substitutes of tools with which he was then compelled to do his work. The carpenter knows the advantage of the morticing machine, the molding machine, the band-saw, and other improvements. The blacksmith sees the advantage of the drop hammer, the shears, the steam-hammer and the portable forge; and even the farmer, who keeps up with the times, appreciates the mowing machine and the many improved hand-tools which facilitate his operations and reduce his labor. There may have been brain energy and labor wasted in the production of improved tools and appliances; for there are some which have never met the expectations of their contrivers or filled the wants of the users. But in truth, there has been no portion or department of mechanical endeavor that has accomplished better results or reached higher success. The number of special tools now used is wonderfully great as compared with thirty years ago. There is no manufacture of consequence that has not its special appliances, machinery and tools, and in tools for general work the improvement has been fully as marked. Even in hand-tools the improvement is obvious to the slightest observation. In every department of industry these improvements have made their mark. They save time and labor, and produce more satisfactory results. It is a wise economy to reject imperfect tools, and, as the patent-medicine-men advertise, "use the best." Whenever an improved implement is put into the market—one that will do the work better or quicker—it is economy to buy it, even if the old one is intact and serviceable.—*Boston Journal of Commerce*.

Effect of Heat upon Bodies.

	Fahrenheit.
Cast iron melts	2786 deg.
Gold "	2016 "
Copper "	1996 "
Brass "	1900 "
Silver "	1873 "
Red heat visible by day	1077 "
Iron, red hot in twilight	884 "
Common fire	790 "
Zinc melts	773 "
Iron bright red in dark	752 "
Mercury boils	630 "
Lead melts	612 "
Linseed oil boils	600 "
Bismuth melts	497 "
Tin "	442 "
Sodium "	190 "
Alcohol boils	174 "
Potassium	136 "
Ether boils	98 "
Human blood (heat of)	98 "
Strong wines freeze	20 "
Brandy freezes	7 "
Mercury " below zero	39½ "

Melted snow produces from ⅛ to ¼ of its bulk in water.

The highest heat of a common wood fire is estimated at 1140 deg. Fahrenheit.

Necessity of Sunlight.

Instead of excluding the sunlight from our houses, says the *Manufacturer and Builder*, lest it fade carpets, draw flies, and bring freckles, we should open every door and window and bid it enter. It brings life and health and joy; there is healing in its beams, it drives away diseases and dampness, mold, megrims. Instead of this, however, many careful housewives close the blinds, draw down the shades, lock the door, shut out the glorifying rays, and rejoice in the dim and musty coolness and twilight of their unhealthy apartments. It is pleasant and not unwholesome during the glare of the noontide to subdue the light and exclude the air quivering with heat, but in the morning and in the evening we may freely indulge in the sun-bath and let it flood all our rooms, and if at its very fiercest and brightest it has full entrance to our sleeping rooms, so much the better for us. Wire nettings in doors and windows exclude not flies and mosquitoes only, but all other insects,and those who have once used it will continue to do so. With this as a protection from intrusive winged creatures, one may almost dispense with shades and shutters and enjoy all the benefits of an open house without any annoyances so frequent in warm weather. But better the annoyances with sunshine than freedom from them without it. Statistics of epidemics have shown that if they rage in any part of a city they will prevail in houses which are exposed to the least sunshine, while those most exposed to it will not be at all or slightly affected. Even in the same house persons occupying rooms exposed to sunlight will be healthier and repulse epidemical influences better than those occupying rooms where no sunlight enters.

Professional Apathy and Indifference.

It is surprising to see so intelligent a set of gentlemen as the architects, civil and sanitary engineers, and physicians of California, so completely indifferent to the great questions and problems which are receiving so much attention in all parts of the United States and foreign countries. Through our exchanges, we have reports from nearly all sections of the country of the formation of societies, the objects of which are to reach right and thorough understandings of sanitary laws, and the promulgation of all possible information in this direction. Learned professors, physicians, sanitary engineers of renown, architects, plumbers, wealthy owners of real estate, reverend gentlemen, and others, realize the great necessity of a more perfected knowledge, to secure which conventions are being held in different cities and societies organized for the purpose. But as yet, nothing has been done, nor any move made, in San Francisco, looking to the same end, although the necessities are as great on this coast as almost anywhere. In many things, California has furnished new ideas which have been accepted by the country generally, and by combined effort and cordial concert of action in reference to the important matter under consideration, we might be able to furnish additional testimony upon material points, if not develope new facts which would add to the general information so earnestly sought after by intelligent men in all parts of our own and foreign countries. The spirit of indifference so plainly manifest in this community among those who should be earnest in their efforts to acquire, dispense, and practice the best intelligence obtainable in connection with principles and mechanical operations which affect the health and lives of the community generally, is more to be condemned than praised. That there is opportunity for improvement, there can be no question, and if the architects and sanitary and civil engineers of San Francisco were to take hold of the matter, and work out the facts and developments which might be reached, many startling revelations would be made.

A DAY'S WORK FOR A FRENCH BRICKLAYER. A French bricklayer, according to the statement of a correspondent of the English building journals, will execute about two meters cube of brickwork in a day. That would be equal to laying 990 bricks in 11 hours. This number is some 300 or 400 less than a day's work of an Englishman upon similar work, while comparing it with the work of American mechanics the difference is still greater.—*Carpentry and Building.*

Tay Bridge Disaster.

Cable reports inform us that portions of the wrecked spans of the Tay Bridge have been recovered, from which, it is asserted, that Sir George Bouch's theory that the train left the rails before the fall of the spans is strongly supported. In continuation of the investigation, Mr. Henry Laws' (C. E.) evidence points to various defects in design, materials, workmanship, and arrangement of the bridge, confirming in many particulars the workmen's testimony, taken at Dundee, as to the defective columns, bolts, lugs, and flanges. He further considered that the yielding of the struts and ties was the immediate cause of the disaster, but that other circumstances contributed to it. Further testimony continues to bring out damaging evidence in regard to inherent defects. On recovering the locomotive from the wreck at the bottom of the river, it was noticed that the brakes were not set, and the reversing lever was well forward showing, apparently, that there was no notice given, or the chances are that evidence of something unusual would now be seen on the engine, either with regard to the brakes or the reversing gear.—*American Engineer.*

IN THESE DAYS of popular half-knowledge and credulity regarding scientific subjects — when Keely, Edison, and Angell are accepted as authorities on matters of which they are profoundly ignorant, and when the daily press, in general, too willingly gives space and approval to all sorts of absurd statements and "evidence," regarding scientific phenomena, it is especially desirable that scientific men should exert all the power of organization and united effort to oppose these false and injurious influences.

In this connection we desire to call the attention of business men to the duty they owe to sustain scientific associations like the American Chemical Society in their work of research and diffusion of knowledge. Vast industries have been built up, and immense fortunes acquired through the application of science to manufactures In the utilization of residuals alone millions of dollars have been made, and science is truly the mother of half of our modern industries. Bacon said every man owes a debt to his profession, and all liberal and enlightened manufacturers should be willing to aid in the development of that science by which they have so largely profited. A practical opportunity is now afforded such to subscribe to the endowment fund of the Chemical Society. It is desired to raise $15,000, the interest to be devoted to furthering the objects of the society, more particularly the expenses of publishing its proceedings. If its members are willing to devote time and labor to research and study, it seems fitting that others should aid in publishing the results. Nearly $2,000 has already been subscribed to the fund, with one or two exceptions by professional men among the members who are far from being wealthy, and it is to be hoped that the balance will soon be made up by the representatives of the vast industries which have been and are yet to be benefited by the results of chemical research.—*Plumber and Sanitary Engineer.*

TO DETERMINE the number of gas-burners for a room of given size there can be no very definite rule for lighting given. Much depends upon *form* of space to be lighted and *color* of surroundings, also of quality of the gas. In ordinary dwellings with white walls and fair quality of gas, a five-foot burner will light brilliantly a space of 1,000 cubic feet. In public buildings, one-half of the above amount of light will be sufficient, or one burner to 2,000 feet of space, although it would be well to provide for more light, in case the walls and ceiling should be of somber decoration. Much, of course, depends upon the arrangement of the burners; if uniformly distributed a better general result is attained, and less burners required.—*Scientific Press.*

THE death rate in the Peabody buildings, during the past year, was 20.9 per 1,000, about 3.21 in a thousand below the average of all London. The average rent of each dwelling was 4s. 4¼d. per week, and of each room 1s. 11½d.

Sound travels at the rate of 1100 feet per second in a still atmosphere.

One-Story Factory Building.

The new discussion in reference to mill architecture is still attracting much attention in New England, and important changes are looked for in the near future in the substitution of one-story buildings for the high structures heretofore employed. This idea is about to be carried out on a large scale by the Willimantic Linen Company of Connecticut. The design contemplates having all the work done on one floor, the machinery to be run by shafting in the basement, and the power to be supplied from engines in the engine house behind the main building. By so bringing all the operations together, it is claimed that there is a very great saving of labor.

The area of the contemplated building is nearly three and a half acres, its ground dimensions being 820 by 172 feet. There will also be an annex at each end of 70 by 50 feet. The height of the main building from the water table to the eaves is to be 16 feet, and there will be three towers, each 40 feet high, with provisions for ventilation in the piers.

Mill owners and managers will watch this experiment with interest, and undoubtedly many of the architectural ideas involved in this plan will be adopted and carried into effect in the erection of great mills in the future. Where land can be obtained at a reasonable price, the advantages to be obtained in the way of plenty of light, good ventilation, convenience, and safety in case of fire, speak strongly in favor of the adoption of one-story factories, especially if this can be secured without sacrificing architectural beauty.

IN A LATE issue, the N. Y. *Evening Post* objects to the proposed State Board of Health for New York, on the ground that, as its main object would be to collect and disseminate sanitary information, it would be simply duplicating what has already been done in Massachusetts and Michigan. It thinks the same data can be employed here as in those States, without the expense and risk of a new department of State government. Bad drainage is the same thing in one place as in another, and the present local organizations ought to prove sufficient safeguards against a pestilence.

Some of the fallacies of this article will perhaps be most clearly seen by substituting schools or charitable institutions for boards of health.

For instance, why cannot our legislators employ the facts already collected in Massachusetts and Michigan about schools, without going to the expense of a department to supervise these? Poor schools are poor schools, whether they are in Massachusetts or New York; and the same thing is true of poor teachers, poor school-books, etc.

Our schools are already pretty well taken care of by the local organizations. If these local organizations are not efficient or adequate, why not go to work and make them better instead of setting up establishments to supervise them? The truth is, that in order to find out if the local organizations —whether of schools, charities or health departments—are efficient or adequate, it is necessary to have some organization outside and independent of them, to inquire into their efficiency, and to point out how they may be made better.

The contrast between the cost of the board and the possible loss by a single epidemic is not by any means "wholly the product of an energetic imagination." Yet boards of health do not exist mainly for the prevention of epidemics, but to teach the people how to prevent the ordinary every-day diseases, which cause in the long run much greater waste of life than any epidemics, and to guard those who are willing to take the necessary pains to secure pure water, air, and food, from having their efforts rendered useless by others who will pay no attention to these matters, and whose negligence or improper conduct causes not only disease and death among themselves, but among others who are in no way responsible.—*Plumber and Sanitary Engineer.*

THE *Springfield Republican* remarks in reference to the late decision that the N. Y. elevated railroads are nuisances for which damages can be recovered, that it is a curious illustration of the widening of private rights under modern law that, because a private court adjudged that a man had no right to blast on his lands if the stones thrown out damaged his neighbors, the court now rules that one has no right to liberate a gas, "although imponderable," if that works damage.

Proper Size of House Sewers.

An interesting series of observations was carried out some weeks ago by Sewer Commissioner Moore, of St. Louis, Mo., for the purpose of determining the necessary sizes of sewers to carry off house sewage exclusively, irrespective of surface drainage or storm water. The present sewerage system of St. Louis provides for all the drainage from whatsoever cause; but it has been found expedient, looking towards immediate extension, to arrange certain additions to the system for the purpose of conveying house drainage alone. A considerable difference of opinion appears to have existed concerning the proper sizes of pipes to be adopted, and it was to settle this question that the experiments were made. A certain neighborhood, having the proper conditions, was selected, through which Compton Avenue sewer, with a diameter of 7½ feet, passes. On this area of 440 acres, by actual count, were 1,370 houses, with no factories to speak of and but very few stores. The observations were taken by sending men into the sewer and constructing a small dam, with a section of 12-inch pipe running through the dam on the bottom of the sewer. In this manner all the flow in the sewer was made to pass through the small pipe, and it was found that in the middle of the day when the flow is highest, as a rule, the water was only 6½ inches deep in the small pipe. In other words, the ordinary house drainage from a district containing 1,370 houses, and a population of about 11,000, only a little more than half filled a 12-inch pipe. The weather and soil were dry enough to insure that nothing but the waste from the dwellings passed into the sewer. The area experimented with is very generally provided with water pipes and district sewers, and the result of the experiment is, therefore, considered as of very satisfactory value as a basis for calculation. Another sewer was tried, 3½ by 4½ feet, in a fairly built up neighborhood of 155 acres, with the result that a pipe of 9 inches in diameter, under the most favorable conditions as before, gave a maximum depth of flow of 6½ inches, and a minimum of 4⅜ inches, giving an average of, say, 5⅝ inches.

These experiments prove the general correctness of the formulæ used in computing the sizes of sewers and drains. While the quantity of the flow shown seems small, it, however, indicates a consumption equal to about 80 gallons of water per day for every man, woman, and child in the area drained by the Compton Avenue sewer.—*American Engineer.*

The International Exhibition of 1883.

Now, that a bill authorizing the formation of a corporation with sufficient privileges to establish the definite organization of the much-discussed project of an International Exhibition in New York, in 1883, has passed the Senate, it seems probable that the project will be brought to a successful issue in a well-matured and carefully-planned exhibition. It is not necessary for us to dwell at length upon the value of exhibitions of this kind, both to the countries undertaking them and to foreign nations; this ought to be appreciated by all, and our own exhibition of 1876 has caused American industry and manufacturers to clearly define the position they occupy in relation to the world. Our Centennial Exhibition had, however, been visited by comparatively few foreigners, but these intelligent and fair-minded judges have returned to their homes, and described the "marvels" they have seen, and pointed out to their countrymen wherein we excel, and wherein we are deficient. To our credit be it said, that the former far surpassed the latter, and the result has been that a large foreign export trade has been established within the past few years. The special value of a World's Fair at New York, in 1883, may be looked for in the fact that since the exhibition at Philadelphia has taught foreigners that our products and manufactures present features of great interest to them in point of study and direct utility, there will be a much larger foreign representation, and our international commercial relations will thus be materially extended. Again, stimulated by our success, American and foreign countries have been urged to extraordinary energy, and the progress itself, made especially in machinery and manufactures, in the seven years intervening between 1876 and 1883, will prove not only an interesting study, but when clearly presented, will demonstrate the capability of, and lead to, further improvement; the relation between the progress made by us and our foreign neighbors will create a healthy state of competition—for all competition that leads to increase of excellence and saving of time and labor reflects directly upon social economy and welfare.

We, therefore, heartily indorse the work and project of the organizers of the World's Fair of 1883, and consider the locality selected for it—New York—well adapted to promote the intended objects of the exhibition, to insure a good representation of all nations, and to present the important features of comfort, amusement, and interest to the visitors of the exhibition.—*American Engineer.*

New Ship Canal.

A preliminary concession has been granted to Herr Dahlstrom for the proposed ship canal from the Baltic to the North Sea—from the Bay of Kiel to Brunsbuttel, in the estuary of the Elbe. "Its depth throughout is to be 20 feet 9 inches, its width at the surface of the water 160 feet, and at the bottom 64 feet; the banks, consequently, have a very gentle slope. Provision will, moreover, be made by the adoption of a peculiar system of locks and reservoirs, for increasing the depth of the water to 25 or 26 feet whenever it may be desirable to do so, and this depth will allow of the passage through the canal of the heaviest German ironclad afloat—the *Konig Wilhelm*, a vessel of 9,603 tons displacement, and the largest ship in the German navy, drawing only 26 feet. The canal can, it is calculated, be completed in six years, and will, it is estimated, cost $3,750,000, or about two millions and a quarter less than the estimates made a few years ago of the cost of constructing a canal 31 feet feet deep and 22 feet wide at the surface of the water. In size, it may be added, the proposed Baltic and North Sea Canal does not compare unfavorably with the Suez Canal, the width of this at the surface of the water being 172½ feet, the width at the bottom 70 feet, and the depth about 26 feet 3 inches."

PLAYING-CARDS with green-colored backs are dangerous, as they are thumbed a good deal during the process of using them; and thus, during a single evening, between the shuffling of the cards and the warmth and moisture of the fingers, a considerable quantity of arsenite of copper may be detached and inhaled, and even introduced through the mouth by those who may be in the habit of moistening the thumb with the lips to facilitate the process of dealing. In the *British Medical Journal*, for November 8th last, will be found by those interested in the matter, particulars of a case of disease of the fingers, in a lady, due to use of such cards, as also of two children poisoned by eating sweetmeat in the shape of toy sugar watches, in each of which the quantity of arsenic on the entire face of the watch was estimated at no less than eighteen grains; and also particulars of a case of eruption on the scalp, in a gentleman, clearly due to the use of a hat with a bright maroon lining, in which a considerable quantity of arsenic was found. In one of the daily journals, Dr. Wallace, analyst to the City of Glasgow, records that he found, on analysis of a pack of playing-cards with green-colored backs, that they contained nearly one-fifth of an ounce of arsenic.—*Plumber and Sanitary Engineer.*

THE annual report of Dr. M. C. Stone, health officer of Newburgh, N. Y., contains much interesting information. There has been an increase in population, but a decrease in preventible diseases, which were 64 last year against an average of 77 for nine previous years. Vital statistics are incomplete, but are to be made more accurate with the aid of authorities. An effort will be made to abolish all privy vaults. The report says, "No man has a right to dig a hole in the ground that will fill with water, and use it for a privy vault. And the sooner people get rid of the idea that the accumulation of five or ten years can be tolerated, provided it does not rise to the surface of the ground, the better." Suggestions regarding house drainage are given plans of which are in conformity with what we have advocated in this journal. An increased popular interest in sanitary subjects is noted.—*Plumber and Sanitary Engineer.*

Lead Pencils.

All know the lead pencil, yet few understand how it is made. Plumbago, or black lead, is found at different places in this country, in the form of graphite. This is reduced in mills to a fine impalpable powder, almost as mobile as water, and making the fingers as smooth as if they had been oiled. A process of mixing with a peculiar description of clay is then used, according to the degree of "hardness" desired in the pencils; and the substance having been reduced to a dough form, one of the most peculiar processes of the manufacture is seen. The dough is placed in a cylinder, within which a screw works a well-fitting plunger, and at the bottom is a plate having holes of the shape and size of which the lead is to be cut. As the coils of tenacious material issue from these holes they are cut up in lengths equal to three pencils, straightened, flattened, and baked. It has been found possible to run a coil 4,000 feet long without breaking.

The cedar used as the wood is cut in Florida, and sent north, not in logs, but in blocks seven inches long, and these again are cut into strips measuring three and a half inches wide by three-sixteenths inch thick. This last pencil-slip is made of a width to yield six pencils, instead of being cut singly; and both halves of the pencil are alike. Both sides of the pencil-slip are equally grooved; and the process of filling the slips, which is done by hand, is exceedingly interesting. Each girl engaged in filling takes up a grooved slip in one hand, a bunch of the straight leads in the other, and with a dexterity begotten of practice very rapidly inserts six of the stalks in the slip. This being handed to a second girl, the latter receives from a third worker the second half of the slip, over which a brush of hot glue has just been passed. The two halves are brought together, each one, it will be remarked, embracing half of the lead; and then, when a row of these slips has been filled, they are pressed under a screw frame until the glue is dry. The next process is to smooth the ends where the leads project, and then we reach another very interesting machine. In this machine a revolving cutter seizes the slip, and with two cuts removes the superfluous wood, separates the pencils and rounds them into shape. The pencils fall from this machine in a continuous stream, or rather in six continuous streams, each pencil finished for use, and so smooth, it is alleged, that the finest sand-paper would scratch them.

American ingenuity is then seen in an arrangement by which the chips falling from this machine are sucked away by a blower into the engine room and consumed as fuel, with the result of keeping the work-room perfectly clear from rubbish. The next curiosity is the counting-board, a grooved board or table, on which by rubbing a handful of pencils over it, and seeing that each groove is full, a gross of pencils can be accurately counted off in five or six seconds. Other ingenious machines are in use for staining and varnishing the pencils, stamping marks and names, and finally packing them.—*London Ex.*

Light and its Action upon the Eye.

At a recent meeting of the Buffalo Microscopical Club, Dr. Lucien Howe presented the subject of the undulations of light and their perceptions by the eye. Brief mention was made of the different theories, accounting for the phenomena of optics previous to the present century. The difficulties of this subject were first solved by Thomas Young, who satisfactorily explained the undulatory theory of light. He showed that what we call light is impression produced upon the retina by the wave-like motion of the particles of matter. Subsequently the lengths of these waves were measured. It would take 36,918 waves of red light, or 64,631 waves of violet light, placed end to end, to make an inch. From the speed of light, which has been measured, it is proved that at least four hundred and fifty-one millions of millions of these minute waves flow into the eye and dash against the retina in each second. Dr. Howe proceeded with a minute description of the microscopical anatomy of the eye, more particularly relating to the "layer of rods and cones." These were stated as being in reality the terminal filaments of the optic nerve. These are shaken or acted on by the waves of light, and it is especially these with which we see.

The Towers of Silence.

No one who has visited Bombay can have failed to remark the peculiar and primitive way the Parsees have of disposing of their dead. Surprising as it may be, it is nevertheless a fact, they expose the dead bodies of their co-religionists to be *devoured by vultures*. A glance at the ceremonies performed over the dead body of a Parsee before it is conveyed to the Towers of Silence, and the mode in which it is left to be devoured by these vultures, may be interesting.

It may be premised that the Parsees are the followers of the prophet Zoroaster, who flourished in Persia, and who, according to the Babylonian historian Berosos, founded the dynasty of the kings of Babylon two thousand years before Christ. At the present day the Parsees are erroneously termed fire-worshippers; but the true spirit of the Zoroastrian religion is the worship of the Creator through his elements.

A corpse is considered by the Parsees a very sacred thing, and the touch of an ordinary mortal is supposed to contaminate it. Immediately after the vital spark has left the human frame, it is taken charge of by two nassasalars (a body of men who are specially ordained to perform funeral rites and paid by the community at a fixed salary). By them it is cleaned and clothed in white unsullied garments, after which it is placed on two flat stone slabs on the ground. The female relatives and friends gather together in the hall where the remains, with all but the face covered, are laid. The male relatives, friends, and all those who wish to show respect to the dead, clad in their white flowing robes, sit on benches on the verandah—and if the verandah is not large enough to accommodate all, on the sides of the street. When a Parsee of note dies, it is not unusual to see a whole street lined with co-religionists, sometimes three or four rows deep. They generally gather together about an hour before the time announced for the remains to be carried to the Towers of Silence. The women sometimes indulge in loud lamentations, particularly if death has overtaken a young person; but the men maintain a grave and respectful silence.

About an hour before the time for taking the remains away from the house, the nassasalars transfer the corpse from the slabs, and place it on an iron bier, which is usually quite new, except in the cases of very poor persons. After the transfer of the remains to the bier, two priests standing at the foot of the corpse commence repeating the funeral service, every one else maintaining the strictest silence. During two pauses in the service a dog is brought in and made to look at the face of the dead person. The reason or philosophy of this extraordinary performance is not very clear. At the end of the service the priests make a low obeisance and retire. The pent-up feelings of the women generally break out at this moment, and a scene of most piteous lamentations ensues. The men outside then come in, and after looking at the face, make a deep and reverential obeisance; some men going down on their knees, with the face touching the ground—most of them muttering prayers, subdued but fervent, for the soul of the dead. The face is now covered up, this being the last glimpse the female relatives are permitted to have of the dead. The bier is then lifted off the ground by the nassasalars and brought out of the house, where two others join them, and take each of the four ends on their shoulders. The men outside rise and remain standing, performing a reverential obeisance as the bier passes them. The mourners then fall in, and the funeral procession, led by the priests, moves on. After the *cortege* has proceeded about a hundred yards, the high priest comes to a stop; but some other priests, with the relatives and intimate friends of the family, follow the funeral all the way to the Towers of Silence. After a short halt, for the purpose of allowing the relatives to take a last look at the deceased, two nassasalars proceed slowly with the bier toward the iron door. One of them opens the door with a key, and they disappear with the earthly remains, and close the door after them. They then deposit the dead body on one of the stone slabs, tear the garments in which it is enveloped with a hook, and issuing out of the same door with the empty bier, proceed to a place where they wash themselves, change their clothes, and undergo a purificatory ceremony. Directly the nassasalars emerge from the iron door, the vultures on the top of the wall descend, and after about ten minutes reappear. Then everybody knows that nothing but the skeleton is left of the lifeless remains deposited within the walls only a few minutes ago. When the nassasalars enter again with another funeral, they drag the skeleton and everything with a hook to the well in the center, and so the bones of the members of this united and unique community mingle together in death. Of course, the height of the hill, combined with the height of the tower walls, renders it impossible for anyone else to obtain the faintest glimpse of the inside of these towers. The nassasalars alone witness what must sometimes be a horrid and revolting sight inside this awe-inspiring place.—*Carpenter and Builder*.

Blistering of Paint and Varnish.

Many are the opinions expressed regarding blistering, and although some very sensible theories are advanced, we are inclined to believe that the bottom of the subject has never been reached. We hold an opinion of the cause of this trouble, and it may be that this opinion has been forestalled by others; but as we have never seen the points laid down in print, we present them here. Blistering of a varnished surface, after the varnish has had proper time to harden, is due to evaporation of moisture which lies confined under the shell of varnish. This evaporation is caused by heat, and it is seldom, if ever, a blister will rise upon a varnished surface without the temperature is raised to an extreme degree, near to that which the varnish received in its manufacture. The accumulation of moisture *under* the varnish may be brought about in several ways, the most particular one being in the closing in of the moisture in the rough stuff. During the rubbing of the rough stuff the water used is partly absorbed, and unless due care is taken to give ample time for "drying out" before the application of subsequent coats, a great amount of moisture will be confined within the cells of the rough stuff. Boiled oil contains moisture, as of water, and in cases where steam is used to express the oil from the seed this percentage is increased. Turpentine, an extremely volatile liquid, also forms an evaporating substance, which is rendered active by a slight heat, and in its haste to reach the air it disturbs the outer surface, either lifting an elastic coating into bubbles or blisters, or bursting a hard and inelastic one into cracks. The primary cause, then, of blistering is moisture, either in the form of wet moisture or of evaporating liquids, such as turpentine. The wood may be unseasoned, or it may have been wetted in the course of preparation, such as steaming to bend, etc. The rough stuff water may have been applied before the evaporation of liquids had taken place, either of which would bring about disastrous results.

"Dry blistering" is simply the hasty absorption of the liquids from the outer coats by putty or paint, which is especially porous, depriving the coating of the requisite amount of binding and adhesiveness. To prevent blistering, close up every lurking place for moisture, and be careful to have each coat dry before applying another.—*American Coach Painter*.

In April last, the joiners, plasterers, masons, bricklayers, and plumbers employed in the Liverpool building trade turned out on strike against a reduction of wages of ½d. per hour all round. The masters at first notified a reduction of 1d. an hour, but afterwards made it ½d. Some hundreds of men are idle, only a few non-society men remaining at work on the masters' terms. The employers state that should the men not return to work, they can obtain plenty of hands, the building trade being slack. The men wish to refer the matter to arbitration, but the employers decline.

Dr. T. S. Sharpe reports the mortality in Natchez for 1879. Of the 109 deaths from disease there were 20.2 per cent. from consumption, mainly among the blacks; from lung diseases, 14.7 per cent.; cough 4, diarrhœa 1, dysentery 2. Diseases of the brain and nervous system 8, of the heart 11, from dropsy 7, and from debility 9. Of the 116 deaths from all causes, 56 were without regular medical attendance; 30 were under 5 years; 56 were white, and 60 colored. The total death-rate was 11.6; white pop. 7,000; death-rate 8.0; colored pop. 3,000; death-rate 20.0.

Our Illustration Plates.

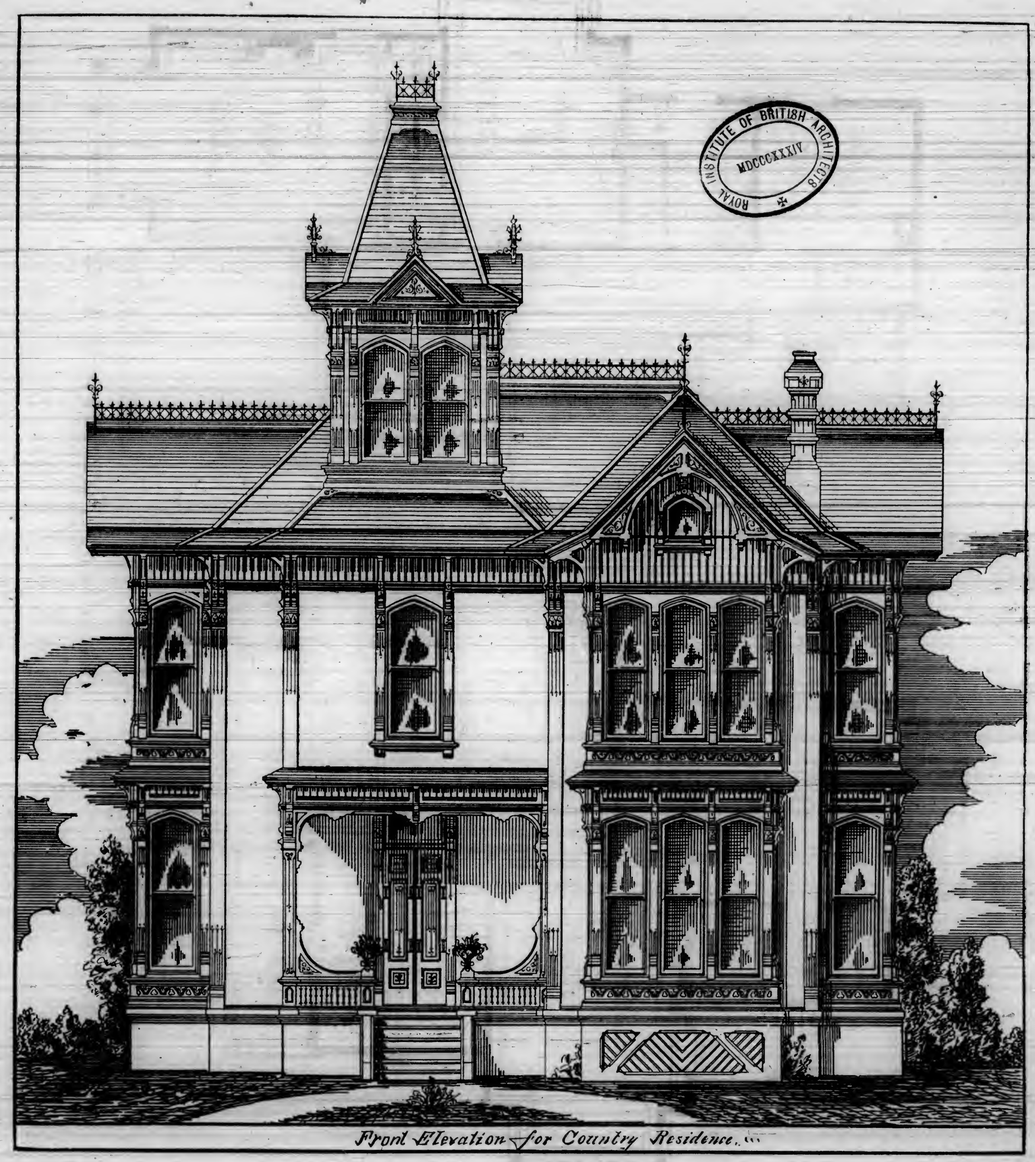
We present in this issue a front elevation and the floor plans for a two-story "Country Residence," which explain themselves; the arrangement of rooms, halls, etc., being fully shown, and the sizes generally marked in figures on the plans. The stories are respectively twelve and eleven feet in the clear. The maximum cost of such a building may be set at $4,000, with the possibilities of reducing or increasing cost by liberal outlay or the omission of certain things contemplated by the plans.

Elevations A and B are suitable for the plan of a one-story cottage, shown in connection with said elevations. Elevation A is by far the more expensive, but if built as shown, would produce a very handsome one-story dwelling. The space between the ceiling of main story and the roof is sufficient in height for comfortable sleeping apartments, which could be lighted by windows in the frieze of main cornice, where panel-work is shown. Elevation B is neat, and not expensive for a good house. The cost of a well-built building, with elevation B, will vary from $2,000 and upward.

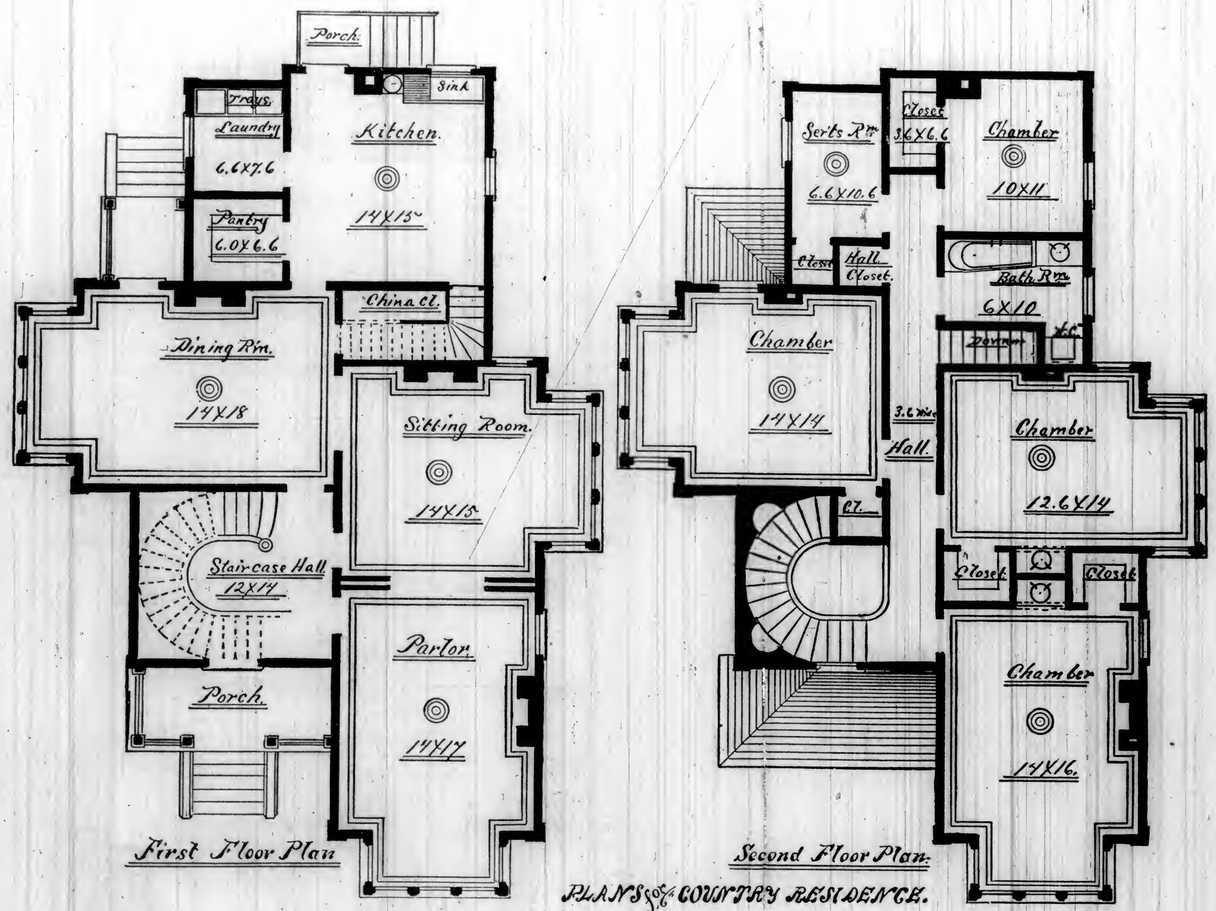
A Strange Story of Steel.

A curious letter is published in the *Sheffield Daily Telegraph*, signed "W. Clifford." It contains some allegations which, if true, have remained unknown to nearly every Sheffield man until now. Mr. Clifford states that the American Government imposed a prohibitory tariff upon Sheffield steel, as a reprisal for the sympathy our Government and people gave to the Southern States in their war of rebellion; and he goes on to say that a Commission of the United States Customs Department which came to Sheffield practically put an end to what remained of the steel trade with America, by handing over to the American manufacturers the hitherto sacred knowledge of mixtures and manipulation which had made Sheffield steel famous. "I was informed," says Mr. Clifford, "by gentlemen representing Sheffield firms in New York, that it is a fact that about the time or just before Dr. Webster came to Sheffield as United States Consul, a Commission, consisting of General Storey, U. S. A., and Colonel Gorrough, sat at the Victoria Station Hotel, and called before them Sheffield manufacturers of steel doing business in New York, and required them, under threat, implied or actual, of seizure of books, breaking open of safes, and general stoppage of business in New York, that they should tell them how they made steel, ostensibly for the purpose of ascertaining its value at New York." Mr. Clifford goes on to ask if it is not true that steel makers were required to state the brands of iron they used, the price, the place of purchase, the freight, etc., coke used, quality, quantity, price, etc., labor, amount, value, and details, the structure of furnaces, and even to tell the physic used and the grade of steel resulting. Mr. Clifford asks further if it is not true that "the Commission visited manufactories, accompanied by American steel manufacturers, who saw, unofficially, but with practical eyes, every department of work in the steel furnaces." Mr. Clifford's inquiries are pertinent, and if they are founded on fact, they will form a curious revelation of how affairs were worked at a time when the States were undoubtedly "sore" against this country; but all stories of this kind must be taken with reservations.—*Engineer*.

Ventilation.—The Lime Kiln Club has again been discussing ventilation. The Committee on Primary Causes and Past Experiences announced that they were ready to report on the inquiry: "Do we ventilate enough." The chairman said that they had inspected over forty different houses occupied by colored people, and had discovered that fresh air was the last thing thought of by the inmates. In one house there were seven children, four dogs, a sick cat, a pile of bad potatoes, a heap of bones, and a lame goose, and the only means of admitting a change of air was by a bullet hole through the door. The committee recommended that every colored family provide themselves with plate-glass windows, grates, and mantles, and fanlights over all doors, and the report was accepted and filed.—*Detroit Free Press*.



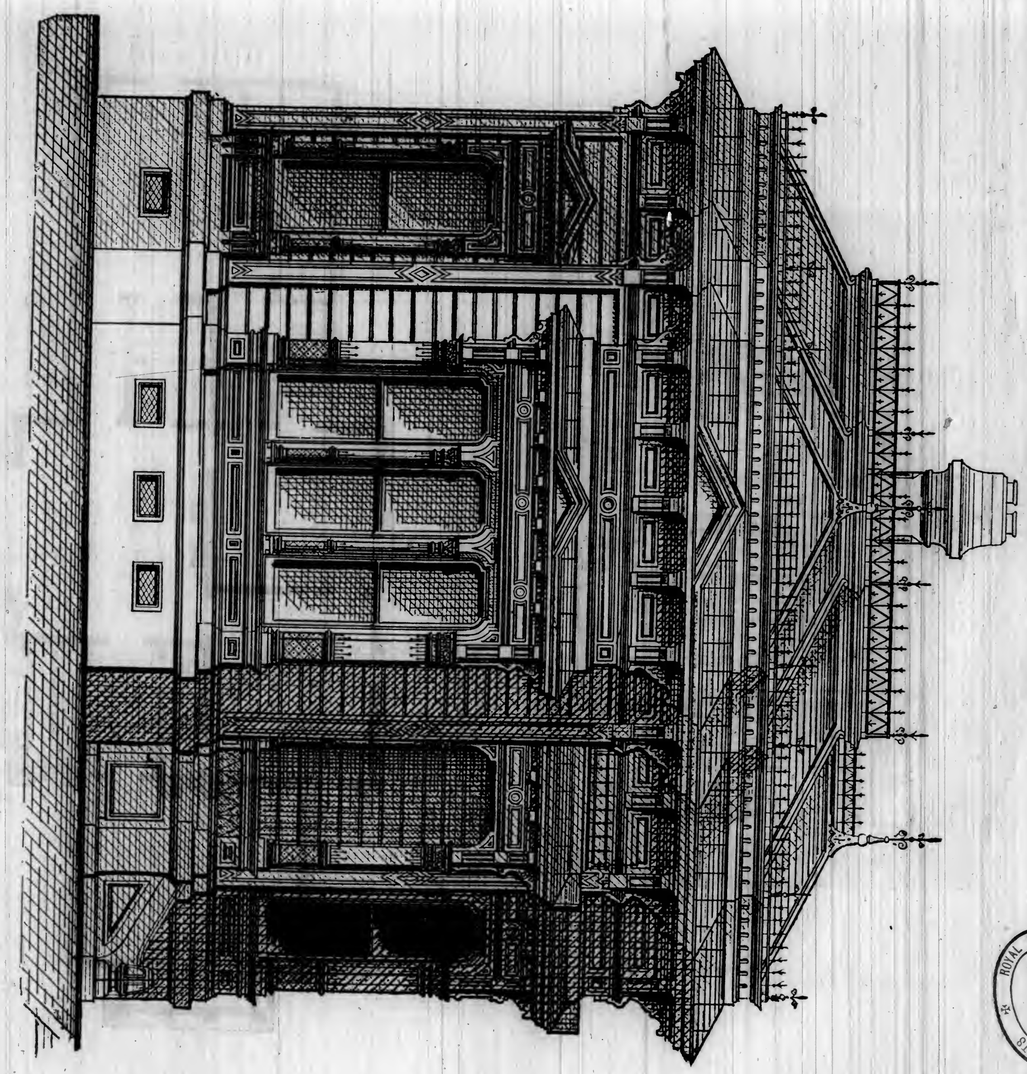
Front Elevation for Country Residence.



First Floor Plan

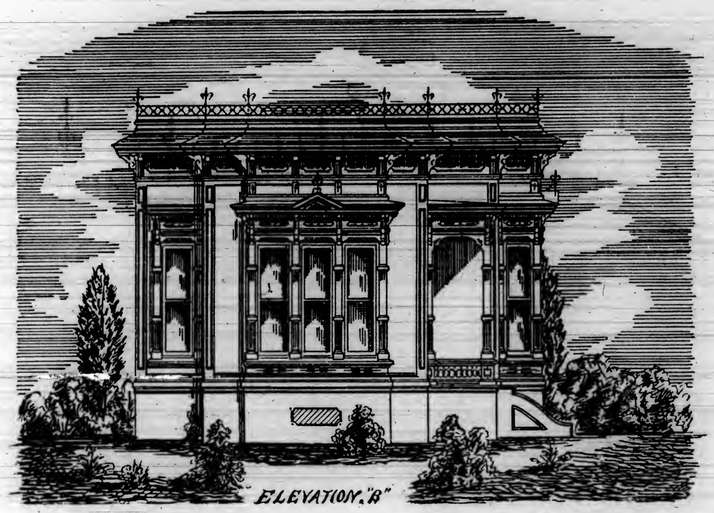
Second Floor Plan.

PLANS of a COUNTRY RESIDENCE.

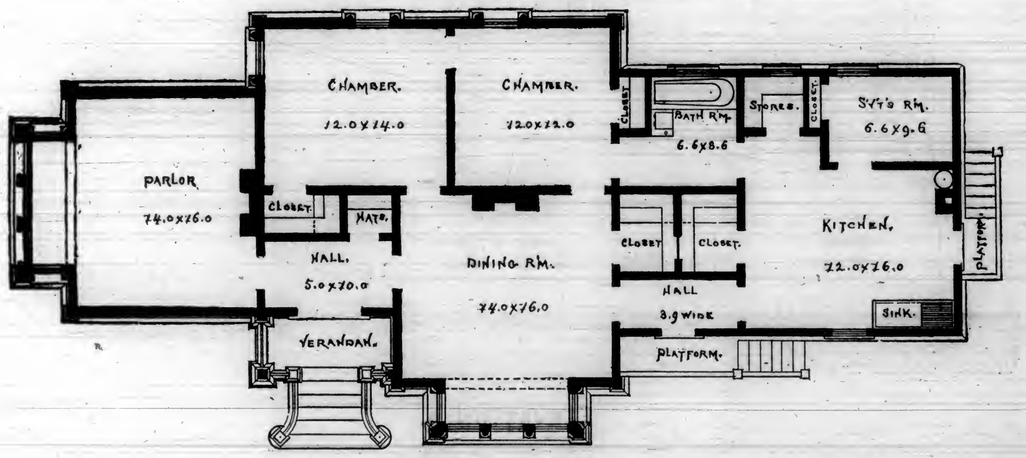


ELEVATION. A.

ROYAL INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIV



ELEVATION "B"



Floor Plan for Elevations A & B.

Great Buildings and Great Builders.

Egypt, the land of mystery and puzzling wonder to all the civilized races of mankind since the advent of historical records, continues to the present day but slightly changed. Like the character and style of its architectural remains, no external influence has succeeded in altering the moody and mysterious majesty of their grandeur, or unlocked, with much apparent advantage, the objects for which they were originally constructed. The birthplace of Earth's earliest civilization, and the cradle in which the infancy of science was reared, and in a manner preserved for future generations of mankind. Placed geographically in a climate of unsurpassed geniality, and pre-eminently favorable in its unclouded atmosphere for astronomical observation and research. As the first cultivators of the soil, the Egyptians were dependent on an accurate knowledge of the movements of the heavenly bodies, which, to them, were the regulators and recorders of the seasons. The lights of heaven, according to Moses, were for signs to them for seasons, for days, and for years. The knowledge of astromomy could only have been successfully acquired through the agency of mathematics, and it was from Egypt that we derived the elements of Euclid, which continues, to the present day, the groundwork of all mathematical science. So remote and undefined is the period in which the pyramids were erected, that an approximation even to their age cannot, with any degree of accuracy, be defined.

There are from three to four hundred pyramids of all sizes in the Valley of the Nile, the greatest of all being the Pyramid of Cheops. It is supposed that each king of Egypt begun a pyramid when he first succeeded to the kingdom, and every year during his reign added another course, so that, according to that theory, the layers of stones would indicate the length of the builder's time of governing.

The Pyramid of Cheops has one hundred and fifty courses, each of which averages a thickness of three feet. There is some show of probability in this notion, seeing that the pyramids now existing are of various sizes, and as they may be regarded as solid masses, such an idea receives from this fact some confirmation. It indicates that there was no preconceived architectural design, but simply a monument of the king's reign, affording just enough internal space for the eventual deposit of the embalmed bodies of himself and family, after death. The volume of each reign being completed, and another one begun. The records in hieroglyphics and figures not only illustrated the personal history of the king, but also gave minute and picturesque details of the country's condition and progress. From these ancient records we are made familiar with the art and industrial condition of the Egyptians of the time at which we might almost say these imperishable newspapers were sculptured. Nearly every craft of modern times is there portrayed with unfading accuracy. The wheelwright building a chariot, the shoemaker waxing his thread, the leather-cutter shaping the leather with a knife varying but little from that of to-day; the weaver in the act of throwing the shuttle, and the whitesmith blowing the blow-pipe, the stone-cutter or engraver in the act of recording passing events of the most domestic character, such as the poulterer removing the diseased pip from the throat of the goose.

The Egyptians were the inventors of writing and astronony. They understood the art of cutting granite with a copper chisel, and could move a block of stone of 900 tons weight any distance by land or water. These huge blocks of stone were dragged for hundreds of miles on sledges, and their transport perhaps did not occupy less time than a year. In one case which is known, 2,000 men were employed three years in bringing a single stone from a quarry to the building in which it was to be placed. Usually the sledges were drawn by men yoked in rows to separate ropes, all pulling at a ring fixed to the block. It is understood that slaves or captives furnished a large share of the moving force in these undertakings; but, besides these, there were a variety of classes of workers, each carefully trained to the performance of his own particular duty—for instance, in dragging the blocks, there were employed slaves to pull, guards to watch, taskmasters to regulate the operations, men with jars to throw water on the ground before the sledges, and, lastly, a person whose duty consisted in marking the time to the cadence of a song to insure a simultaneous draught. And we know that the lash, under such coercive conditions, had a prominent place. They built round and pointed arches with masonic precision 2,000 years before the building of the Roman "cloaca magna," and sculptured Doric columns 1,000 years before the Dorians had a name or place in history. Even this advance in science and industrial pursuits is eclipsed by the state of the domestic relations existing between man and wife. This century is rendered famous by what is termed the woman rights agitation; but the Egyptian in that most delicate question has left us evidence of our again only and quite unconsciously imitating one of their established laws or customs. There is in the Egyptian Museum at the Louvre a collection of legal documents from the time of Alexander the Great to the twentieth year of Ptolemy Enercretes. These documents, which are family contracts, wills, deeds, and so forth, have lately been deciphered by M. Revillont. He has traced the legal existence of several generations, and thrown great, perhaps unexpected, light on the history of female property. It seems that husbands always ceded all their wealth, real and personal, to their wives, who disposed of it in turn to the children of the marriage or to nephews. A widow was thus left in a comfortable or commanding position. Let us take the case of Patma, who, on his marriage with a lady named Tavutein, made her a bridal gift, perhaps answering to the "morning gift" of the Germans and the Hindu gift by the nuptial fire. He also promised to make Tavutein a small yearly allowance on the security of his property. Three years later we find poor Patma deep in his wife's debt, and he promises to yield up all he had if he does not clear himself in three years. A later papyrus shows that Patma had to sell all his possessions, which are carefully inventoried, and that he satisfied the claim of his wife at this alarming sacrifice—in fact, liquidated.

Examples of this kind are common. Husbands were ruthlessly "sold up," and property was concentrated in female hands. The husband, poor fellow, often inserted a clause in the marriage contract, by which he stipulated that his wife should maintain him in old age.

Diodorus Siculus, we believe, mentioned these facts; but it was supposed that it was only Diodorus's fun, a mere traveler's tale. The new papyri demonstrates beyond all doubt that man has often been, in times past, a wronged and submissive being in the matrimonial direction.

The most ancient of historians, writing more than 2,000 years ago of Egypt and its monuments, did so almost with as much uncertainty as to reliable data as the writers of our own day. The absence of hieroglyphics on some of the pyramids indicates that they were erected before the invention of the alphabet or the construction of the figure characters, through whose agency we are informed of many interesting facts. Another evidence of their great antiquity is displayed in the outline and form of all the Egyptian buildings, as the doors, windows, and ornamentation partake of the pyramidal pattern. They painted from mathematical rules, and were guided in their sculpture by the same inflexible models. Works of art produced under such circumstances were necessarily flat in character and unpleasing in effect.

Chemistry must also have been understood in its natural aspect, for to this ancient people we also stand indebted for the knowledge of glass-making, as well as some information about the durability and permanence of some of the primitive colors; and in sacred history it is recorded that 2,000 years B. C. the Egyptian potters were celebrated for their skill. Modern research has removed any doubts on this point, for articles of pottery bearing inscriptions confirm and define the period of their manufacture. Their skill was of a high order, for they understood the art of the glazes, and, indeed, used the same metallic oxides employed by modern potters for coloring their wares. The discovery of glass-making has been erroneously ascribed in a somewhat romantic manner to some Phœnician merchants, who, while cooking their food on the sea-shore, discovered that the alkaline action of the ashes from the fire had vitrified the sand. Glass ornaments were, however, produced long before that Phœnician period, as the Egyptian beads and other ornaments in the British Museum bear witness.

All this advance in science and art must have been accomplished under monarchical government, at least so we may conjecture. We are told from Scripture that when Abraham first visited Egypt, 1,900 years before the Christian era, he found a Pharaoh ruling there. Moses, nearly 400 years afterwards, on accomplishing his divinely allotted task of delivering the Israelites from Egyptian boudage, left a Pharaoh behind, the Pharaoh evidently during that interval of time bearing the title of the combined priest and king. And it was only possible to secure such excellence in so many branches of human knowledge and art by a united and well organized system of labor, both mental and physical, and colleges were established and conducted by a specially trained order of priesthood to secure the former, and we have no doubt that the latter was forcibly applied in the most despotic and even cruel manner.

Under such favorable circumstances we need not feel so much astonished at the extent and stupendousness of the building which we have set ourselves to describe. In past times the Great Pyramid, or, as it has been called by some, that of Cheops, was regarded as one of the wonders of the world, and it might still have been so styled had not modern science, in its research and investigation, deprived it of many of its mysteries and inexplicable surroundings. The origin and purposes of the Pyramids has been attributed to several and very opposite uses. That they had primarily an astronomical object is now generally conceded, and at the same time, in a secondary sense, in all probability were intended as places of sepulture for the kings and rulers of the country. A belief by the Egyptians of the soul's immortality and ultimate rehabilitation of the body itself led to its being preserved after death in a manner both ingenious and successful. The kings of Egypt did not devote much consideration to the dwelling for the fragile living body, which, according to their belief, required only a temporary lodging, but exhausted their utmost efforts in the realization of a permanent structure for their tombs in which their bodies after death were to be, as it were, entombed—the abundance of mummy relics establishing beyond question the accuracy of the methods of embalming, and also indicating an advanced knowledge of the preservative properties of certain gums and oils.

The exact limits of this wonderful Egyptian kingdom are difficult to define, the task having hitherto baffled the industry of the most diligent inquirers. The Nile-drinking branches of the populations, however, must have from necessity been of a cohesive character. The periodical inundations of their great river necessitated a united action of those within its beneficial influence to embrace the largest measure of its benefits, and to avert the dangers attending the uncontrollable violence of its floods. At other periods of the year, preceding and succeeding this annual wave of fertility, the inhabitants living in such a favored country were practically free from what may be regared as laborious exertion or anxiety.

It is estimated that the Nile Valley has been raised during four thousand years to the height of forty feet, the annual recurring deposits consisting of the washed detritus of the granite ranges of the African interior, and also portions of the limestone rocks from a less distant source—the former especially containing the fertilizing alkalies of the granite, affording in some measure a ready solution of some of the wondrous results of vegetable growth. It must be remembered that this Nile deposit furnishes some of the most valuable fertilizing agents, and that without any expense to the cultivator.—*London Exchange.*

Dead Rats Under the Floor.

I was called upon some months ago by a gentleman, requesting me to take up his flooring and discover whence the stench arose that rendered the room untenable. I took up the floor, and could not find the least trace of rats; but the opening joints of brickwork in the chimney jamb on one side of the fire-place appearing to emit the stench, I stopped them up with cement, whitewashed the brickwork with quicklime, and laid the boards down temporarily; but as illness had broken out in the house, I was compelled to leave it, the gentleman informing me the stench was emitted on the other side of the fire-place. I told him my impression was that the rat was under the hearth, by the fire. I was requested by a lady the other day to step into her

bedroom and tell her what could be done to stop the stench, for they had been troubled with it for eighteen months, ever since a lady died in the room. At first they thought the putrefaction of the body had penetrated the floor. They had the room stripped, everything disinfected, the bed changed; but still "that horrible smell." They had the flooring taken up; but no trace of anything there; and that was twelve months ago, and still the smell. I told her to have the hearthstone removed; and doing so, the cause was at once detected. I was called directly afterward to another house, the gentleman requesting me to take up the floor. I did not remove it, but immediately removed the hearthstone, and immediately under the fire, beneath the hearth, I found the cause in each case a large putrid rat. Let me give a few words of advice to your readers. Always have a solid concrete hearth, a foot in depth, below the stone, and plenty of broken glass immediately under the fire-grate, and especially round the wall where the rats make an entrance; and when you detect a smell of dead rats, don't pull up the floor, but take up the hearth. Don't merely use disinfectants, but get rid of the stench. Trusting these few lines may be of service to any one in the same dilemma as myself—I remain, sir, yours truly.—*The Illustrated Carpenter and Builder.*

The Treatment of Diphtheria.

Dr. Thomas Gurney, senior physician to the City Dispensary, London, makes the following contribution to the *Lancet*: "Since I have held the position of physician to the City Dispensary, I have had considerably more than one thousand cases of diseases of the throat under my care, many of which, both in public and private practice, have been cases of diphtheria. About this, by far the most serious disease of the throat, we have much to learn. The stiffness in the neck, the disturbance of the circulation, the rapid rise of temperature, before any affection of the throat is observed, all point to its being a blood poison calling for prompt and decisive treatment.

"The two questions that arise when called to a case of diphtheria, as, indeed, in all diseases, are: How does the disease tend to kill the patient? and, how does nature endeavour to rid herself of the disease?

"Diphtheria tends to kill by suffocation and by its poison exhausting the vital energy. Suffocation may be either accidental, or as a natural result of the throat affection—accidental if, when the membrane is thrown off, it becomes lodged in the larynx; natural if the swelling inside the throat shuts off the supply of air to the lungs. Nature will attain the mastery over her enemy if the strength be kept up and the deposits arrested. With these points to guide us we know that the arrest of the disease and nutritious support are our great aim. To succeed in this I have adopted a respirator made of the ordinary shape and size, the front being minutely perforated. Inside the respirator I have two or three perforated plates inserted, between which I place common tow (not cotton wool;) I then drop on each of the layers of tow ten to twenty drops of a solution of carbolic acid, creosote, and glycerine. Should the patient tire of these, I use turpentine or iodine. I place the respirator over the mouth, and keep it continually applied. My next idea is to provide the patient with warm moist air. To do this I have two kettles of water kept boiling on the fire; attached to the spouts of the kettles I have an elastic tube of an inch caliber, at the end of which is a spray-like nozzle, which I put immediately under the mouth of the patient. By this means I get my disinfectant remedies carried moist to the throat. As a sedative to the pain I know nothing so comfortable to the patient. Previous to this I take care to give an active purge, which usually removes offensive stools of effete, poisonous matter. Internally I give aconite in frequent small doses—two to four minims of the tincture; at the same time freely supporting the strength with milk, cream, and eggs, with or without brandy, and beef tea *ad libitum*. As a drink I recommend patients to take as much chlorate of potash in solution as they can without vomiting. I have found chlorate of potash highly beneficial in all cases of a low typhoid character. If this is objected to, I advise the juice of lemon to be taken—by many thought to be a specific for diphtheria. Should the system be very weak, I prescribe the belladonna instead of aconite; but I find better results from the latter. As soon as the urgent symptoms have subsided I order strychnia, with or without nitro-hydrochloric acid—this not only being the best tonic, but also preventing the paralysis which so often follows diphtheria. I have found this treatment to be highly beneficial, but knowing the tendency there is to rheumatism after this terrible disease, I never forget our friend the bicarbonate of potash."

The Eucalyptus Timber.

The various species of the genus *Eucalyptus* are principally distributed over the whole Australian continent and Tasmania. A few even extend to the Indian islands. They are of immense importance to our colonists, and we are glad to mention that the Government of West Australia has enabled Baron Von Mueller, the Government Botanist for the colony of Victoria, to publish two decades of a beautifully illustrated quarto work, which is to be wholly devoted to descriptions of the species of this genus. These eucalypts form the principal timber vegetation of the wide Australian continent, and for many ages the inhabitants of that portion of the globe will have to rely largely, if not mainly, on them for their wood supply. These trees are known in Australia under very many local names, such as gum trees, stringy-bark trees, iron trees, etc. Some of them are low-growing shrubs; others attain to immense heights. Thus the spotted gum tree of Victoria (*Eucalyptus gonio-calyx*) attains in rich forest valleys a height of 300 feet, with a stem diameter not altogether rarely up to 6 feet, exceptionally even of 10 feet. Its wood is hard and tough, varies from a pale yellowish to a brownish color, and is exceedingly durable, lasting long underground. It is in great demand. Another species, the ordinary stringy-bark tree of Victoria, (*E. macror rhyncha*) has a very hard wood, which is covered with a thick fibrous bark, which is persistent on branches and stem, and can be removed in large sheets. These, when flattened and dried under pressure, are extensively used for roofing purposes, and such roofs have been known to last twenty years. Another species, the yellow box-tree (*E. melliodora*) yields a good wood, and, in addition, one ton weight of its freshly gathered branches and leaves will yield, on proper treatment, 2 lb. 12 oz. of pure potash, and of crude pearlash a much larger quantity. The useful products to be obtained from these trees are very numerous, and include, in addition to the timber and potash just alluded to, oils, tars, acids, dyes, and tans. So useful are they that we trust proper measures will be taken by the various local governments in Australia, so as to avoid some present need causing their destruction before others can be planted to fill the place of those cut down. We hope, with the author, that the importance of these eucalypts, whether viewed in their often unparalleled celerity of growth among hard-wooded trees, or estimated in their manifold applicabilities to the purposes of industrial life, or contemplated as representing among them, in all-towering height, the loftiest trees in her Majesty's dominions, will be still more deservedly recognized by the perusal of his very important work.

At a meeting of the Liverpool Engineering Society, Mr. E. M. Touzeau, Survey Member of the Sanitary Institute of Great Britain, read a paper entitled, "Subsoil Waters and their Drainage."

The author, having briefly alluded to the effect of subsoil drainage upon the flow of rivers, and the various works in which a knowledge of its principles is required, proceeded to consider the subject in its relation to health and comfort of town populations. The necessity was urged of subsoil drainage being undertaken as part of every sewage scheme, and further, its extension to such places as are at present sewered without attention having been given to the drainage of the soil. The largely increased discharge of sewers, owing to subsoil water, was alluded to, and the advisability of relieving them of this duty was urged. In its effect upon town populations, the increased temperature of the ground, especially to the poor, and the improvement in ground air from the removal of polluted water, was pointed out. If work of this description was more generally carried out, it was remarked that much of the water now flowing off the surface into the sewers might be carried off by the land drains to the easement of the sewers. Attention was then directed to the causes of wetness in land, and the various ways by which the water might be removed; also the necessity for regulating the depths and spacing of the drains apart, according to the pervious or non-pervious nature of the ground in which the drains were laid. Cases were mentioned, where, from want of attention to the direction of flow in subsoil waters, the pipes intercepted but little of the water, which, in cases of this kind, flowed between the pipes instead of into them. From instances such as these of want of attention, it was requisite that the requirements of each district, or portion of a district, should be studied before works for the drainage of the subsoil were carried out.

House Ventilation.

A large party of visitors recently assembled at Mr. James Morris' new villa, Third Avenue, West Brighton Estate, in order to inspect a new system of ventilation which has been adapted to the structure after principles laid down by Dr. Drysdale, of Liverpool. The party included the Mayor of Brighton, the Chairman of the Hove Commissioners, and a number of owners of property, scientific and medical gentlemen, and others. Mr. Morris is the chairman of the directors of the West Brighton Estate, a company which has, in the course of about seven years, been the means of erecting in the west-end of Brighton over 500 mansions, at a cost of some £2,000,000. Various experiments in architecture are being made, of which the villa visited on Saturday is one. Should the system obtain public favor it is intended to build other villas on the same principles. Dr. Hayward, the colleague of Dr. Drysdale, was present at Saturday's gathering at Brighton, and read a paper on the subject of scientific house ventilation. Dr. Hayward observed that ventilation was not merely the infusion of fresh air into rooms; it involved the removal of the already existing air, and its replacement by fresh air. In winter, when it was necessary to close tightly the windows and doors, this became a still more difficult problem. The conditions demanded by health were that the fresh air to be admitted must be warmed to a temperature of at least 60° Fahrenheit; it must be admitted in sufficient quantity to fill the room every twenty or thirty minutes; it must have ingress when the doors and windows were shut; it must have egress at or near the ceiling; the suction power must be constant, and sufficient to empty the room in twenty or thirty minutes; while the whole of the rooms, passages, and lobbies must be included in the arrangement. Added to these points, practical considerations required that the system should be inexpensive and automatic. These conditions were met in Dr. Drysdale's system by utilizing the waste heat of the kitchen fire as the suction-power, the kitchen fire being commonly lighted throughout the year, and affording all the requisites of a motive-power without extra trouble or expense. In order to equalize the suction-power throughout the house, a central or intermediate drum was adopted, in which all the flues terminated, at the same level—viz: at the top of the house, whence a single flue conducted the foul air to the upcast shaft. A supply of fresh air at an agreeable temperature was thus obtained by night as well as by day, the suction lasting for hours after the kitchen fire was out, and in winter as well as in summer, while the absolute removal of the vitiated air simultaneously with the introduction of fresh, warmed air was particularly advantageous to health. The ventilation of sleeping apartments in this manner was an important feature in the system. The adaptation of these principles to the villa at West Brighton was then practically explained. The foul air escaped through the perforated cornice at the angle of the ceiling in each room, thence passing to a "foul air chamber" at the top of the house, and after being drawn through a "downcast shaft" to the basement, it was expelled by means of the kitchen chimney. The suction power thus set up in each room drew inward simultaneously a current of fresh air from another perforated cornice at the opposite side of the room. This cornice, in turn, was connected with flues passing between the joists of the ceiling, along which passed a current of fresh, warmed air from the exterior lobbies, which, in turn, were supplied from a "hot-air chamber," where the air, fresh from the exterior, was warmed by a coke stove.—*London Exchange.*

Everybody's Column.

We have received so many letters of inquiry in regard to matters outside of our own special business, as well as those pertaining to our particular interests, that we have concluded to devote a column, or whatever space may be necessary, to the answers of our correspondents. We hope our numerous patrons will be pointed in their questions; concise in the language used; write distinctly; give their full name and address, also, if they prefer to have their name given, and if not the "alias" they use, to be written distinctly. As this column is open to all, we shall endeavor to answer any question given to us, in a plain and intelligible manner.

Ed. Architect:—I lately bought a "hectograph," and have a great curiosity to know what the jelly-like substance is composed of. Will you be kind enough to inform me?

F. W. H., Salinas City.

Ans.—The "jelly-like substance" may be made by a great many different formulas, the two following being as good as any: Take of gelatine 100 parts; water, 379 parts; glycerine, 375 parts; kaolin, 50 parts. Or, to use a simpler form, take of gelatine 1 part; glycerine, 4 parts; water, 2 parts. A little practice will enable you to have a copying tablet of your own manufacture.

Ed. Architect and Review:—Will you be so kind as to tell me how to make Florida-water? I want to know, so I can go to the druggist, buy the articles, and make it

Healdsburg, June 1st. Myself.

Ans.—The following is a very good formula to use: Oil of bergamot, 1½ oz.; oil of orange, ½ oz.; oil of lavender, ½ oz.; oil of cloves, ¼ oz.; oil of cinnamon, 2 dr.; tincture of orris, 4 oz.; tinct. of Peru balsam, 1 oz.; alcohol, 2 quarts; water, ½ pint. The oils should be added to the alcohol and let stand for a few days, with frequent shaking. Then add the tincture and the water. Let it stand for two weeks; then filter, and the prettier bottle you put it in the better you will think of its fragrance. I know this is good, and age will help it.

Ed. Cal. Architect: I have taken the *Carpenter and Builder* (published in New York,) for the past three years. There has been quite a controversy in it in regard to the number of shingles a man can put on a roof in a day. How many do *you* think a man ought to lay in a day, provided he made a good job? G. H. T., San Francisco.

Ans.—A man working for us, that put on three thousand a day, each shingle to be well nailed, would be doing a very *faithful* day's work. Of course, we know five, and as high as six thousand, have been put on by one man; but we are not answering to "*slapping*" them on, but simply a good day's work well done.

Ed. Architect:—How do you cut a hip-rafter? and oblige Sonny, Sacramento.

Well, Sonny, we have always used a *saw* for that performance; but if you want to know a *rule* by which you can cut any kind of a rafter, we will be most happy to inform you.

Ed. Architect:—Will you please to tell me what make files are considered the best for carpenters' use? Amateur, Ukiah.

We do not propose to make this an advertising column; if Amateur will look over our list of advertisements, he will undoubtedly find where to send for the best.

Ed. Architect:—What is the best story-book for a little girl to read? L. G., Healdsburg.

Will the dear, sainted spirit of Mother Goose help us to answer this conundrum?

A Mediæval Manuscript. — A manuscript Psalter has just been discovered at Freiburg, in the Grand Duchy of Baden, which archæological experts assign to the second half of the eighth century. It presents all the characteristics of the later Merovingian and early Carlovingian period, and is presumed to have been orignally the property of some monastery on the left bank of the Rhine.

The Cork-tree.

The cork-oak closely resembles the *quercos ilex*, L., or evergreen-oak, so well known in English shrubberies. It is indigenous to the mountainous regions of Spain, Portugal, and the south of France. It grows from thirty to forty feet high, and from two to three feet in diameter. Spain and Portugal supply the greatest portion of the cork which is used in Europe; abundant supplies are also received from the south of France, at the foot of the Pyrenees, the islands of Sardinia and Corsica, and the forests of Algeria. When this tree is about five years of age, the cork, which composes the greater part of its bark, begins to increase in a very remarkable manner. Nearly all its vegetative activity seems to be concentrated on this part, which grows unusually large, thick, and spongy. If left on the tree it becomes cracked, and so deeply fissured that it is unfit for use. It is therefore removed before this happens. Its removal does not injure, but is beneficial to the tree, for if the cork is allowed to remain on its stem, the cork-oak seldom lives longer than fifty or sixty years; if, on the contrary, it is removed, the tree flourishes sometimes for upwards of one hundred and fifty years. After the tree is thirty years old its cork may be removed at intervals of from six to ten years. The first crop of cork is generally inferior in quality, and is principally used for making floats for fishing-nets. The crops are usually gathered in the months of July and August. Two opposite longitudinal incisions into the bark are made the whole length of the stem, and then several transverse ones about three feet apart. The bark is now beaten to separate it from the subjacent fiber, and detached in cylindrical pieces for inserting under it the handle of the instrument, which is curved and made thin at its extremity for this purpose. In effecting this removal great care is taken not to injure the newly-formed suber of cork—viz, the living layer of cork beneath. After barking, the pieces of cork are slightly charred to close the pores, then loaded with weights to flatten them, and finally stacked in square masses in some dry place, where they remain for two or three months. In drying they lose about one-fifth of their weight. Only when the trees are forty or fifty years old is the bark sufficiently matured for making good corks. This substance is valuable for bottle-corks, because it is light, porous, compressible, and sufficiently elastic to adapt itself to the neck of a bottle. It can be cut into any shape, and notwithstanding its porosity, is impervious to any common liquid. These qualities make it superior to all other substances as a stoppering for bottles, for which it is principally used.—*Cassell's Technical Educator.*

A prominent West King Street merchant, proprietor of a corner grocery, has invented a new mode of opening clogged-up sewers, which for "neatness and dispatch," has rivaled all previous efforts of its kind. The sewer in his yard had been stopped up for several days, when he resolved to open it if possible. To facilitate his work he brought into requisition a large "cannon" shooting cracker. Removing the cover he placed the instrument of war in a firm position in the debris, mud, etc. The match was applied and the merchant retired to a safe distance. Slowly the fuse burned until, when about a half-inch burned, it went out. Another match was cautiously applied, when there was a tremendous explosion and the grocery man's handsome form was a complete mass of mud and filth, and, to make matters still worse, the stench was unbearable. The last seen of the "scientific experimenter" he was making for the bath-room, being in about as good spirits as a weaver with his loom out of order and yarn all tangled.—*Lancaster (Pa.) Intelligencer.*

Hardening Small Tools.—It is said that the engravers and watchmakers of Germany harden their tools in sealing wax. The tool is heated to whiteness and plunged into the wax, withdrawn after an instant and plunged in again, the process being repeated until the steel is too cold to enter the wax. The steel is said to become, after this process, almost as hard as the diamond; and, when touched with a little oil of turpentine, the tools are excellent for engraving, and also for piercing the hardest metals.

State of the Labor Market in Australia.

Things do not seem very flourishing in this part of the world, to judge from the following remarks of a Sydney paper: "There are times when it may be sound economy to set aside a sum of money for assisted immigration, but no one who has taken the trouble to ascertain the condition of the labor market in this colony will venture to affirm that such a vote is capable of justification at the present moment. Seldom in the history of the colony has the labor market been more depressed than it is now; and though we do not fear for the future, we may reasonably protest against the hardships of the present. Scarcely a week has passed since the completion of the Exhibition building without some deputation of artisans or laborers waiting upon the Colonial Secretary for relief. In every quarter there are evidences of want of employment; yet, in the face of this fact, a sum of £75,000 is put upon the estimates to bring more men to the colony to enter into competition with those who are already working at starvation rates. If anyone doubts the real condition of the labor market, let him advertise for an artisan, and we venture to say he will have fifty applicants for the appointment."

Shaded Streets Promotive of Health.—All medical writers agree that shaded streets are an essential element to public health; that trees absorb miasma, purify the atmosphere, create currents of air, and produce a refreshing coolness. A tree is never at rest, even in a dead calm. It is always fluttering its foliage, and stirring up the stagnant atmosphere around it. A special fund ought to be granted the department of highways for the planting of trees on all new and principal streets of the city.—*Philadelphia Press.*

Market Report.

But few changes have been made in the price of building materials since our last issue. The price of nails seem to be steadily on the decline from the almost "fancy price" of a few months ago. Quotations will show a decline of about 75 cents per keg. Doors, sashes, blinds, etc., remain about the same, with a tendency in favor of the buyer. There has been quite a demand for painting materials, but prices have not changed.

Oregon Pine.		
Common Rough, up to 40 feet, per M feet		$18 00
" 40 to 50 " "		19 00
" 50 to 60 " "		20 00
" 60 to 70 " "		21 00
" 60 to 80 " "		22 00
Refuse Rough		14 00
Common Rough, sized with planer $2 additional on above rates, per M feet.		
No. 1 Flooring, 6 inches and over, and Stepping	per M feet	30 00
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring	per M feet	30 50
Rough Clear for flooring, $1 less than above rates, per M feet.		
Second quality Flooring and Stepping, per M feet		21 00
Ship Plank, rough	per M feet	25 00
" planed 1 side	"	28 00
" planed 2 sides	"	30 00
Deck Plank, rough	"	28 00
" dressed	"	32 50
Laths	per M	3 50
Redwood.		
Rough Merchantable	per M feet	$18 00
" Refuse	"	14 00
Surface, No. 1	"	30 00
Surface, 1 x 8	"	28 00
" 1 x 6	"	28 00
" No. 2	"	22 50
Rustic, No. 1 1 x 8	"	28 00
" No. 2	"	25 00
" 1 x 10	"	30 0
" short, 8 to 10 feet	"	25 00
" " under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00

T. & G., 6-inch, under 7 feet	per M feet	$20 00
" " No. 2	"	20 00
" Beaded, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
Half-inch Surface	"	27 50
Pickets, fancy	"	20 00
" rough, pointed	"	16 00
Pickets, rough, square	per M feet	$14 00
Siding, ½-inch	"	20 00
Port Oxford White Cedar	per M feet	$30 00 to 45 00
Sugar Pine	"	30 00 to 50 00
R. W. sawed shingles	per M	2 00
Battens, ½-inch		75

HARDWARE AND NAILS.—We note the following reduction:

10 to 60 pennies, are quoted at	$4 75
8 " " " "	5 00
6 " " " "	5 25
5 and 4 " " " "	5 50
4 and 5 pennies, brad heads at	6 50
6 " " " "	6 25
8 " " " "	6 00
10 and upward " " "	5 75
3 penny fines " "	8 50

LUMBER.

Receipts since our last—1,941,000 feet lumber, 3,834,000 shingles, 130,000 laths, 13,500 railroad ties, 1,315 posts, 355 cords wood, 11 cords stavebolts, 6,228 packages barrel mat., 587 hoops.

Total receipts since January 1st:

Lumber, ft	81,214,547
Shingles, No.	25,252,282
Laths, No.	5,811,200
Wood, cds	12,646
Piles, ft	26,000
" No.	2,151
Cedar, logs	1,758
" ft	72,980
Rosewood, logs	32
Shakes	498,500
Pickets, No.	20,000
Hoops, bdls	6,423
Staves	12,299
" bdls	1,235
" cds	23
Railroad Ties	88,857
Posts	277,134
Sugar Pine, ft	945,000
Barrel St'k, pkgs	17,571½
Spars	59
Wool Slats	54,000
Stave-bolts	78,000
" cds	91

Building Intelligence.

The following list of improvements indicate in part at least, the condition of the building interests in this and adjacent cities and places. Our report may not cover all improvements in progress, as the information given is only such as we gather through persevering personal effort. If architects and builders generally would supply us promptly with facts in their possession, we would be enabled to furnish a more perfect statement. We shall always be obliged to architects, owners, contractors, and all other parties who will make known to us building improvements in progress or contemplated. This department of our journal is specially set apart for the purpose of presenting all facts of interest in this connection, and we hope the time will soon arrive, when we shall be able to reach every fact of interest involved in connection with building improvements.

SAN FRANCISCO.

One two-story and basement brick building, on the "Old Corner," south-east corner Commercial and Montgomery sts. Owner, A. B. Grogan; architect, J. Marquis; carpenters, Terrill & Slaven; brick-work, Watterson. Cost, $25,000.

One two-story and mansard roof frame building, on north side of Washington st. near Webster. Owner, Mr. Hinkle; architect, J. Marquis. Done by day's work at a cost of about $7,000.

One two-story and basement frame building on Post st., between Larkin and Hyde. Owner, Chas. Strehl; architect, H. Geilfuss; contractor, F. Klatt. Cost, $6,200.

One-story frame building, on Taylor st. between Turk and Tyler; divided into three stores. Rear house being altered considerably. Owner, L. Mejasson; architect, P. Huerne; contractor, Kraeger. Cost, ——.

One two-story and basement frame building, on Howard st., between Eighteenth and Nineteenth. Owner, F. Meyer; architect, W. Winterhalter; contractor, H. Thom Worden. Cost, $6,000.

Alterations in the Academy Building on Pine, between Sansome and Montgomery. Owners, Michael Reese Estate; architects, McDougall & Son; contractor, H. G. Fitzpatrick. Cost, $9,000.

Four-story brick building, on Battery, between Sacramento and Halleck. Owners, Main & Winchester; architect, C. Geddes; contractor, W. E. Stevens. Cost, $15,000.

A two-story building to be used as a grocery and dwelling, on the corner of Larkin and Green. Owner, Mrs. ——; architect, W. J. Moore. Cost, about, $2,100.

One two-story frame building, on Fulton st., at end of Geary st. road. Owners, Monnier Bros. Built by day's work, at a cost of about $10,000.

Two-story frame with brick basement, for schoolhouse, on corner of Pine and Scott. Owned by the city; architect, W. Curlett; contractor, Perry. Cost, ——.

Two-story frame building, on Buchanan near Sacramento. Owner, Mr. Mecker; contractor, John Robinson. Cost, ——.

Two-story frame building, on Sutter, between Webster and Buchanan. Owner, Mr. Hagan; architect, W. Schmidt; contractor, —— Blake. Cost, $6,000.

One two-story frame building, on Sutter st., between Webster and Buchanan. Owned by the Real Estate Associates. Day's work.

Store and dwelling, on Buchanan, between Geary and O'Farrell. Owner, C. H. Stanyan. Day's work, at a cost of about $1,500.

Two-story frame building, on corner of O'Farrell and Hollis sts. Owner, Mr. —— Marshall; architect, T. J. Welch; contractors, Smith & Laherty. Cost, $2,700.

One two-story and basement house; also, one-story house in the rear, on Ellis st., between Buchanan and Laguna sts. Owner, Geo. D. Betsche; architect, ——; contractors, Norton & Walker. Cost, $4,700.

Two-story double house, on Oak st., between Gough and Octavia. Owner, Mrs. Delegnal; architect, T. J. Welsh; contractor, J. McCann. Cost, $3,000.

Three-story house, north-west corner Fulton and Webster. Owner, D. Mullen; architect, T. J. Welsh; contractor, J. McCann. Cost, $4,000.

One two-story house, 11 rooms, on corner Clay and Webster. Owner, H. Hinkle. Cost, $6,000.

Two-story house, 9 rooms, on Clay near Webster. Owner, H. Hinkle. Cost, $4,500.

Seven houses on Clay st., between Buchanan and Webster, containing 10 and 11 rooms each. Owner, H. Hinkle. These houses will cost about $4,000 each.

One house on Clay st., adjoining above, 13 rooms. Owner, H. Hinkle. Cost, about $7,500.

House on north-west corner Jackson and Webster, contains 9 rooms. Owner, H. Hinkle. Cost, $5,000.

Two houses on Webster near Jackson, 8 rooms each. Owner, H. Hinkle. Cost, $3,700.

Two houses, 7 rooms each, adjoining above. Owner, H. Hinkle. Cost, $3,000 each.

Two houses, 7 rooms each, on Jackson st., between Webster and Fillmore. Owner, H. Hinkle. Cost, $3,000 each.

Three-story frame dwelling, on Twenty-first st. near Valencia. Owner, —— Smith; contractor, W. Blons. Cost, about $7,000.

Two-story frame on Chattanooga, between Twenty-third and Twenty-fourth. Owner, G. Edwards; contractor, T. W. Wilcox. Cost, $1,550.

Barn and dwelling on Twenty-fourth near Douglass. Linehan, owner. Done by days' work.

Repairing job on Nineteenth, between Diamond and Sherman sts. Owner, Kenney; contractor, J. W. Wilcox. Cost, $100.

Smoke house on Eighteenth, between Hartford and Castro. Owner, Schriber; contractor, Wilcox. Cost, $150.

Brick building on Bryant, between First and Second; to be used as a wine depot. Size 150 feet by 160 feet. Excavating and brick work by J. Haff; Carpenter work, by Mahoney Bros.; architect, P. R. Schmidt; owners, Lachman & Jacobi. Cost of building, about $50,000.

One-story and mansard, on Turk, between Devisadero and Broderick. Owner, Walter Campbell. Builder, Wharff.

BERKELEY.

Two-story frame building. Owner, Geo. F. Becker; architect, Clinton Day; contractor, Haskell & Smiley. Cost, $9,000.

Two-story frame building. Owner, J. R. Barker; architects, Meeker & Banks; contractor, C. R. Lord.

Three-story brick building, with mansard roof and tower. Owner, University of California; architect, J. A. Remer; contractor, R. Mitchell. Cost, about $48,000.

Two buildings of brick and granite, three stories and basement. Owner, State of California; architects, Wright & Sanders; done by days' work.

NAPA.

One-story brick building. Owner, Edgington; architect, J. Marquis; contractor, Cox. Cost, $8,000.

OAKLAND AND ALAMEDA.

Long Branch Hotel, on Webster st., size, 110x114. Owner, J. W. Pierson. Cost, not fully determined.

One two-story frame building on Alameda av., near Union. Owner and builder, Mr. Ewer. Cost, about $2,000.

One one-story frame building on San Jose av., between Oak and Walnut. The terms upon which this house is built are private.

Frame building to be used as a bathing house, at foot of Park st. Owner, Capt. Winant; done by days' work, at a cost of about $2,500.

Frame building for stable on south-west corner of Madison and Lake sts., Oakland. Owner, J. Lohman; architect, Clinton Day; contractor, McKillican. Cost, $1,500.

Brick building on Eleventh st., near Broadway. Owners, Smith, Doe & Co.; architect, W. Kirk; size, 60x100; done by days' work.

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The California Architect and Building Review.

VOLUME I. NUMBER 7. SAN FRANCISCO, JULY, 1880. $1.50 per Annum, in Advance. Single Copies, 15 Cents.

The California Architect
AND
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

Sent to any part of the U. S., postage paid, at $1.50 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

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Our Second Six Months.

With the present issue of this journal we commence the SECOND SIX MONTHS of its existence with a thousand thanks to our numerous patrons for the many and liberal encouragements received. Not a few predicted at the commencement of the enterprise that its publication would not be continued six months. But such prophetic declarations have failed of fulfillment, as we still live, with MOST EMPHATIC AND CONCLUSIVE encouragements and prospects that there will be no EDITORIAL DEMISE while life is spared to the present management, and the further well-assured prospect that after the head and hands which now direct affairs shall have yielded to the inevitable fate of all living, others will enter and occupy the *sanctum sanctorum* of the CALIFORNIA ARCHITECT AND BUILDING REVIEW, and perhaps with better and greater abilities continue its publication for generations to come.

Our contest with adverse circumstances in various forms has been vigorous and determined, and we enjoy the splendid victory achieved. At its inception, no one connected with the publication of this journal enjoyed the least practical knowledge of the necessities and responsibilities of the case, and we are more than pleased with the success that has attended our inexperienced efforts. The hearty commendations from all sources fully repay the excess of effort, and hard toil and labor which has been required, and looking forward, we anticipate the time when this will be ranked among the very best architectural journals published.

There are resources within this city and State which in time will become tributary to our purposes and furnish prominent subjects for these columns, while the multiplied and multiplying sources of intelligence and information from all parts of the world, through published journals, will enable us to so enrich our pages with valuable facts and representations, that this journal will become a necessity in every HOUSEHOLD, OFFICE, AND WORKSHOP.

This statement indicates large promises for the future, but not greater than will be realized by our patrons. At present we are in receipt of exchanges from nearly all the principal cities of the United States and England, and at an early day we intend to secure the exchange of every known architectural and scientific publication issued in the English and other languages, so that from month to month we shall be able to furnish the most select and valuable information upon all pertinent subjects.

These facts should stimulate a diligent and earnest effort on the part of every citizen of the Pacific Coast to lend a helping hand, not only by their individual subscriptions and advertising patronage, but in extending and increasing its circulation. For with increased financial resources, we shall be the better prepared to meet the heavy expenses necessary to carry on the enterprise to the accomplishment of promised results.

Fair Play—Please.

Our Eastern friends are welcome to a reproduction of our humble efforts; but we trust that, in all fairness, when original articles from this journal are copied, the proper credit will be given—or, at least, that credit be not given to those who have used our original matter in silence as to source and origin. Please remember that we labor under a thousand disadvantages in San Francisco, which do not attend the publication of a journal in the Eastern cities of our country. We are excluded from channels of information here, which flow freely east of the Rocky Mountains; and the work of opening up resources on this coast is by no means an easy task. These we are required to discover and manipulate into practical and useful forms, and the difficulty is made the greater, because withal, the enlistment and shaping of public sentiment enters into the consideration. All we ask, however, is fair play in all directions, a right support in the way of subscriptions, and we pledge ourselves to produce a good book and be happy.

To Our Eastern Friends.

With thanks to the many hundreds who have forwarded their subscriptions to this journal from "EAST OF THE ROCKY MOUNTAINS," we shall send several thousand copies of this issue to all parts of the United States and adjacent places, hoping to receive in return

AS MANY THOUSAND NEW SUBSCRIBERS.

Our aim, purpose, and determination is to increase circulation until the number of cash subscribers shall equal those of the most popular and successful architectural journal published. And with this accomplished, our friends cannot in reason expect too much of us, as all that can be, will be done, to increase its intrinsic merits and value. We have studied and learned the necessities of the case, and assure all that the *will* and *force* is in store to meet them; simply awaiting that increase of resources which will enable us to perfect and execute contemplated things. All questions of doubt as to the

PERMANENCY OF THE ENTERPRISE,

If not in some as obstinate as the animal whose jaw-bone was used by Sampson in slaying the Philistines, must yield to the self-evident facts which now appear in connection with this journal.

If dubious shadows surrounded us in our infancy, and the probabilities of continued success to any appeared uncertain, these conditions have disappeared. We have passed through our first six months, and grown so strong that we fear not the future; reaffirming, that while life shall be spared to the present management, there will be no editorial demise; but that monthly hereafter, this journal will appear; not less in interest and importance in any particular, but burnished and brightened by experiences and persistent enterprise, its pages shall bear evidence of manly determination to make it all that ourselves or our best friends can desire.

FRIENDS AT HOME AND ABROAD,

All who have not, send us your own subscription, and assist us in securing

NOT LESS THAN 10,000 MORE.

Desirable.

The supreme object of life with all intelligent people is the enjoyment of good health, without which the most enticing pleasures of time are marred, and the relish of enjoyable things diminished or entirely destroyed. Those who rush on through early life, with but little or no considerations of anything beyond the effervescent gratifications of the time present, or who sacrifice the well-understood and defined laws of health, barter away the strength and vigor of early life, and sow seed which with certainty will yield mental and physical thorns and regrets for their more advanced years. Millions of men have been consigned to early and untimely graves, as the result of undue eagerness to become rich, or the reckless pursuit of unsubstantial excesses in various forms—each and all drawing but too largely upon the vital organism, consuming with rapid haste the physical and mental powers and forces of nature, which often yield and pass away ere the meridian of life is reached.

Universal.

The natural disposition of the human mind, is to desire increased wealth. Some, from a purely idolatrous love of gain and the possession of riches, irrespective of all those higher and nobler possibilities which lie within the control of those who have acquired riches; while with others, the desire reaches beyond the mere sordid sentiment, and encompasses the innumerable, satisfying enjoyments and pleasures which in a thousand forms lie within the control of those who love more the fruits than the mere possession of riches.

The Building Business and Builders in San Francisco.

It is entirely right and proper that owners of real estate should seek to accomplish its improvement at the lowest possible cost consistent with the rules of justice and equity. But the rights of owners to secure the labors and services of others at less than fair and equitable compensation is no greater than those of contractors to obtain unreasonably high prices. Both are excesses, and neither admissible under the rules of fair dealing. But sometimes a most singular and erroneous theory is set up by owners of real estate, who argue and seek to maintain as a fact, that the profits upon building operations are large; that immense gains have been and are generally realized by contractors; and following this line of argument to its legitimate conclusion, the further proposition must be admitted, that contractors as a class—as the result of such paying and profitable business—must be rich or well circumstanced financially. But this conclusion is not sustained by actual facts, except in a very limited number of cases. We are willing to admit that some of the contractors operating in this city have made financial successes of their building operations, but it is questionable whether a parallel can be named in the history of cities, where like "golden opportunities" to make money in the building business have been so great, or so recklessly thrown away as they have been by contractors in San Francisco during the thirty-odd years of its existence as a city. Thousands of buildings of every class and description have been erected within the limits of the "Metropolis of the Pacific," costing many millions of dollars, and from this vast outlay but few builders have realized any considerable amount of coin, as percentage of earnings and profits upon their work, while very many hundreds of failures have occurred, involving a large amount of losses in the aggregate. Competition, from the earliest days of the city's history, has been neither wise nor profitable, as a rule, so far as accumulated results to operators are concerned, only a few having reaped a reward for their labors beyond a moderate living; and it is difficult to find more than a very few, even among the more successful, who admit that their present bank account and real estate possessions are the result of profits derived from building operations.

The fact is beyond successful contradiction that the contract prices at which many hundreds, if not thousands, of buildings erected in San Francisco have been let, have been for less sums than their actual cost and value, and in nearly, if not quite as many cases, *pro rata* settlements have followed, with losses to those who furnished the materials, mill-men, workmen and others.

Generally, in such cases, owners have reaped the benefits of the transactions; but sometimes, when they have risked the venture of joining contract with irresponsibly low bidders, they have brought upon themselves vexatious law-suits and difficulties which have not only entailed loss of time and personal annoyances, but the expenditure of an amount of money to make settlement, much greater than the prospective saving at the time of entering into contract.

A few cases of "comfortably circumstanced" might be related of those who were prominent as contractors in the "early days," whose success has been the result of specially favorable circumstances and personal influences. And some few of our younger contractors, of from ten to fifteen years experience, have done well, and laid for themselves a foundation upon which, by careful handling, they may reasonably expect to accumulate an early competency for all the practical necessities of life. But taking as a rule, the general class of contractors—those of the "early times in California," and those of more recent advent—but few of them have realized more than a mere living, although hundreds of thousands of dollars have passed through their hands respectively. And if the *pro rata* and short payments, unqualified failures and "runaway" cases are taken into consideration, it will be found that there is a large deficit standing against this class of contractors. And we do not hesitate to state as a fact, that the contract price paid for a very large number of a certain class of buildings in this city, will not average more than 90 per cent. of their actual cost and value at the time of their erection.

As a special illustration, reference may be made to the year 1866 or '7, during which period the erection of buildings was undertaken by men at frightfully low figures—their true value being a secondary consideration, with the purpose and intent on the part of the contractors to draw the best and largest payment possible, and then abandon the work. The number of failures during the twelve months alluded to was estimated to be over *two hundred*, and the greater number of the parties engaged in the transactions of that year, after gathering in all the collectable moneys, left the city, and have not since returned. We know, as a fact, that contracts were taken at twenty-five per cent less than cost; and while owners received this apparent benefit, many of them also received in return buildings so botched and badly constructed that the bills of expenses since have greatly exceeded the saving on first cost. Sometimes owners become pleased at the prospect of securing buildings at low figures, but the after expenses of rectifying mistakes, substituting proper workmanship for spoiled material, changes first pleasures into continued regrets.

It is exceedingly doubtful whether the same amount of coin has been handled in any other line of business, commercial or mechanical, with so little profit to the operators generally. And when paying profit has been made, it has been mainly in the erection of the larger and more costly class of edifices.

There are still left in this city some of those who earliest operated as contractors, but the larger proportion have either passed away from the confines of time and toil, to realize the hidden secrets which lie beyond, wrapped in the mysteries of the great hereafter, or, seeking the scenes of their boyhood, are spending their later and present years amid the surroundings and pleasures of the homes of their youthful days, while a limited number remain on the Pacific slope, enjoying the fruits of their earlier successes.

But, taken as a whole, the building business has not been a profitable one to those engaged in it in San Francisco. To illustrate, how many building contractors are there in this city who are to-day enjoying, as the result of their profitable labors in building houses, the show of pleasures and comforts enjoyed by thousands engaged in other pursuits, in which far less amounts of money have been employed? How many have costly homes of their own, surrounded by the manifest evidences of financial success in business? How many have even comfortable unincumbered homesteads of their own? How many drive fast horses and splendid teams, as do men generally who are rich or "well to do?" How many are seen with diamond jewelry and other evidences of fortune? Men who make or possess considerable amounts of money in California generally avail themselves of those luxuries which wealth alone can afford or furnish. And if the building business in this city had been lucrative, as a general thing there would be more self-evident illustrations of the fact displayed in some of the forms suggested. But the real facts of the case are, that the building business has been run at an *exceedingly close figure to cost;* and as often as otherwise, taking the average of the past thirty years, there has been but little or no profit to contractors. There is but little risked in the assertion, that if the losses which have occurred were deducted from the profits made, the difference in favor of contractors would be exceedingly small.

Help Us.

We intend to make this journal one of influence, and a source of valuable information and interest to all architects, builders, owners of real estate, and others. We shall, therefore, be thankful to our numerous friends and patrons for suggestions and assistance in any form. We want **10,000 names** on our subscription list, with which we shall be enabled to introduce contemplated improvements, not at present possible. People generally do not understand the fact, that regular contributors require pay for their services, and that every line written and printed, not the product of our own pen and brain, selected articles from other publications, and incidental communications, are procured at large expense. We hope, therefore, that our patrons, one and all, will use their influence to secure us all the additional subscribers possible. All assistance of this character will be returned in improvements in this journal.

The Combustibility of Oil Pigments.

The present style or mode of lining the interiors of halls and entrances to theaters and mercantile buildings with wood instead of plaster, has a tendency to provide for great conflagrations. Elevators serve as conductors for all upper stories, and the more elevated these stories are, the greater the liability to their utter destruction. Open stairways out of large sale-rooms offer the same free passage to other rooms above. All wood-lined buildings must, of course, follow the custom of being content with something to give light and beauty to the wainscoting and sheathing of the ceilings, and hence the pigments used for this purpose have done more in this class of buildings to furnish the fire-fiend with a pathway to feed the advance column of flame with fresh material at every step, than anything else used in their construction. How is this? the unsophisticated will ask. All paints used for coating these plain surfaces are mixed with oil and turpentine, and several applications of these oil paints is needed to give them the proper finish, when the large area of surface is all ready at any moment to burn, no matter how long it has been done. I will give an illustration of how combustion works with these materials in this city. Several years ago a fire occurred in Bancroft's building, the two floors of which were occupied by a furniture dealer, and were heavily stocked with fine furniture. The linings of walls and ceilings were all of wood, and well coated with oil paint. The fire, starting in the basement or cellar, soon communicated with the large show warerooms above by means of the lining, or wainscoted open stairways to the second story. Here, it was very apparent to every observer, that the whole destruction to the furniture was due to the OIL-PAINTED surface of the woodwork of wall and ceilings, which reflected in flame a scorching heat, destructive to varnished or upholstered work. The fire traversed the whole interior, following the painted work, until all the wood-work was charred, when the conflagration was easily subdued by the firemen. Now, I contend that had the coatings over the interior walls been done with *fire-proofing* material, the fire at that establishment would have been confined to the basement, or nearly so. I have cited this class of buildings, because in them the danger is greater from the use of oil paints. Non-combustible materials are not new, and many claiming to be such are mixed in oil, and are therefore dangerous. There are, however, many compounds known to artisans, which, if applied to new buildings, would render them as handsome and far more assured against fire than the paint now in use. Old buildings, whose interior linings are sheathed in coats of oil paints, can be remedied by their removal, and replaced by a more suitable covering. Zinc white, formed into oxyehloride of zinc, forms a snow-flake white surface, as also kalsomine of zinc; but the former is a very hard durable paint. I don't wish to discourage the use of oil pigments, but merely to urge their discontinuance in future in mercantile houses and hall-ways of all places of public entertainment, etc. The different styles of fire-proofing, when well understood, would assure property-owners, and render tenants more secure in their property by being rated less dangerous by all insurance companies. Architects would be doing a great good to mankind, by inaugurating this reform in lining, whenever the opportunity for its application was worthy of a trial, and thus contribute to the saving of life and property.

J. E. W. C.

The Watch Trade of the United States.

The Watchmakers' and Jewelers' Guild of the United States held a convention in Chicago the second week in May. In his address, as President of the Guild, Col. R. E. P. Shurley said that the demands of the trade now amount to 3,000 watches a day. Of this number, the large manufactories of the United States produce 1,530 a day, as follows: The Waltham factory, 750; the Elgin, 500; Springfield, Ill., 80; Hampden Watch Company, 90; Howard, 20; Lancaster, 50; Rockford, 40. The number produced by smaller establishments was not estimated. The great body of American watchmakers are native born.

Fatal Consequences of Imperfect Sewerage.

We copy from the *Plumber and Sanitary Engineer* its statement in full of "The Princeton (College) Disaster." In commenting thereon, that journal states: "At the time of the outbreak of the fever, which has resulted in the temporary closing of the college, the sickness of some forty students, and at this writing the death of five of the latter."

It further states that the plumbing and drainage was planned by and executed under the supervision of the Professor of Architecture and a graduate of Harvard, and the best architectural school of Paris. But as the Professor is one of the victims, his version of the matter has not been reached. The sacrifice of life is already greater than that from the Madison Square Garden disaster.

The same journal says: "No architect should undertake to plan sanitary arrangements, unless he is sure that he understands such matters." This is correct as far as it goes, but the suggestion does not comprehend a safeguard against similar consequences. The sad and fatal illustration referred to was undertaken by one who was *sure* that he understood the matter; still we are told that the loss of several lives has resulted from his *presumed* thorough knowledge of the work intrusted to him. Without any design to reflect upon the learning and ability of the professor alluded to, it is an established fact that the veriest incompetents on earth are *sure* in their assumed and pretended knowledge, not only in reference to plumbing and sewer work, but in all business and professional relationship.

A higher standard than men's opinions of themselves should determine competencies and abilities, before they are *permitted* to engage in a line of operations which encompass and jeopardize human life. Under the rule of *being sure* that they understand such matters, a blundering ignoramus might perpetrate errors which would cost many valuable lives. And the sooner that owners comprehend the true state of the case, and confine themselves to parties of well-understood, *practical* qualifications, the better. Unfortunately, it is too much an accepted presumption that men generally are all that they claim to be, particularly in architectural and mechanical operations; while, in fact, only one in many is really sufficiently competent and skillful to be intrusted with matters requiring intelligent understanding and careful manipulation.

THE PRINCETON DISASTER.

The sudden recess of Princeton College, consequent upon an outbreak of malarial fever, by which some forty of the students have been prostrated, and which has already caused several deaths, has naturally excited much discussion in public and private. The serious consequences of the outbreak, and its important bearings on sanitary progress, induced us to visit Princeton and personally investigate the circumstances of the case, for which we were afforded every facility by the college officials, and we are thus able to lay the main facts in the matter before our readers.

The history of the outbreak dates back about a month. Before that time there had been about the usual amount of sickness in the college, but attention was then specially drawn by the simultaneous illness of seven students in a private boarding-house. Examination revealed that the well from which these students drank was polluted from an adjoining cesspool. Prof. Cornwall analyzed the water and found an excessive amount of albuminoid ammonia and free ammonia.

An analysis of the water of all the wells and springs from which the students drank was then ordered. As a result ten more wells were shown to be impure. By this time the disease had begun to assert itself in the college buildings; some forty students in all were attacked, but not all at the college. Occupants of all of the buildings were seized, the least number being in old Nassau Hall, and the most in Witherspoon Hall, supposed to be the most complete of all the college buildings.

An investigation was begun by the faculty, and it was hoped prompt remedies would relieve the prevalent alarm, when the deaths of three of the patients created a panic, and so many of the students' friends wrote requesting their return home, that it was finally decided to adjourn the term for a month to allay the excitement and to permit remedial measures.

Princeton is distinctively a college town, and is made up of the college buildings, the residences of the faculty, a couple of hotels, and a moderate number of private dwellings. There is no business carried on in the place, except providing for the wants of the students. The college buildings are scattered about the grounds in picturesque confusion, and are of all styles of architecture, several being of great antiquity. There are five buildings in which students sleep—Nassau Hall, built in 1756; East College Hall, erected in 1833; West College Hall, erected in 1836; Re-union Hall, erected in 1870; and Witherspoon Hall, erected in 1877.

Up to within a few years there were no sanitary features in any of these buildings. The bedroom slops were taken out by hand and emptied into small cesspools near by, while water had to be carried up in the same toilsome and primitive way. Out-door privies were used and misused, and everything about the sanitary arrangements was decidedly offensive and unsatisfactory.

Less than four years ago, water-closets were introduced into all of the dormitories on the ground floor only, while sinks were placed in each hall-way to supply water mainly for lavatory purposes. The water came from a very pure and productive spring, which is still the source of supply, while the waste was carried into a twelve-inch sewer which ran across the college grounds and down to a large cesspool, 1,200 feet distant, beside the railroad. This cesspool was sixty feet long, ten feet wide, and fourteen feet deep, with an overflow pipe at one end; the bottom was open, and it was supposed that the fluids would drain off in time. There were two man-holes, tightly covered, but no ventilation either to the sewer or cesspool, except into a brick flue in the Witherspoon building, and a galvanized pipe which ran up the side of one of the dormitories, close to the windows, and which had been cracked in several places by base balls or in other ways.

The cesspool had *never been cleaned*, and was full to the brim. Possibly the sewer is also choked by the deposit backing up. Yet this was the sole receptacle for the sewage of some seven hundred persons, amounting to several thousand gallons daily. The drains from all of the dormitories connected with this cesspool, as did those from the University hotel.

In most of the buildings there was absolutely no bar to the gases produced by decomposition in the cesspool and sewer from entering the bed-rooms, while the absence of ventilation for either the cesspool or sewer left no other exit for them. The waste pipes were not carried above the roof, nor was a single trap separately ventilated. The sinks were incased in wood, and were used to throw chamber slops in, and as urinals; they were necessarily offensive, particularly as the halls in some of the buildings in which they were located had but little light or ventilation. Even in the handsome new Witherspoon Hall the arrangement was no better; in each hall the sink, save an unventilated trap, offered no barrier to the entrance of the cesspool air close to the doors of students' bed-rooms; and in this, the newest building, the amount of sickness was greatest.

Despite the fact that, for weeks, disinfectants had everywhere been abundantly used, the odor from some of the fixtures was noisome in the extreme, particularly in the west dormitory, where two of the worst cases of sickness were found in rooms opening on halls, in which the state of the fixtures was but too suggestive of contagion.

Attempts are being made to trace the above outbreak to some primary cause, and to sift the cases into specific classes of disease. But it is enough for our purpose to show that the defective drainage of these buildings at Princeton was sufficient to have poisoned all who occupied them, and that it is simply providential that so few suffered of the many who were exposed. How the poison was first introduced has not been explained fully, but how it was spread is very evident.

Other colleges should take warning from this experience, and at once have a thorough examination made of their buildings by experts to ascertain if they are not also deficient in these matters. Immunity from such an outbreak should not by any means be considered evidence of good sanitary arrangements. It is better to shut the door before the horse is stolen.

We are informed on good authority that no pains or expense will be spared to correct all these defects, and that the trustees of the institution propose to avail themselves of the best expert advice. If they do this, there is no doubt that the college will be as healthy as any in the country.—*The Plumber and Sanitary Engineer.*

Healthful Brick Residences—Hollow Walls.

The impression prevails to a large extent in California that dwellings, school-houses, etc., erected of brick must necessarily be more or less damp, and therefore unhealthful. There are several causes why this conclusion so generally obtains.

First, all bricks are absorbants of water and moisture, and those used in former years in the construction of the few residence brick buildings found in San Francisco were especially so. But the brick manufacturers of this coast are now producing bricks that will compare in quality with those made almost anywhere.

Secondly, the mortar used in such cases has been of a kind in keeping with the brick material, and the mechanical execution of the work no better than either. Consequently, with porous bricks, sandy mortar, and badly filled joints, good solid walls are out of the question. Every architect of experience has seen walls, in part or as a whole, torn down, many of the bricks taken from which have been scarcely marked by the stain of mortar, except upon the two larger faces, and their removal from the walls as easy a matter as lifting them from beds of sand. Wherever this state of things exists, it is not reasonable to expect even moderately dry buildings or walls.

But perfectly dry and healthful buildings can be erected of brick, by using hollow walls, provided they are properly erected; and if the walls are withal properly ventilated, they will afford the most perfect and healthful means imaginable for ventilating the building. But there is a science in building such walls, which if brought into practice will insure results of the most thoroughly satisfactory character. We should be pleased to see some of our enterprising citizens try the experiment, and our word for it, if the right principles are employed, the first test will demonstrate results that will forever obliterate the prevailing notion that dry and healthful residences cannot be erected of brick in this city. But we caution owners not to accept the statements of every one who may assert their knowledge of the art of building hollow walls. Many of the old books on architecture contain illustrations of this class of work, and are good so far as they go. But the old style of brick ties will not meet the case on this coast, where rains sometimes continue for weeks together, and wooden ties are a miserable substitute for brick. Non-corroding metal of proper form is the best practical material for this purpose, and this can be provided at moderate cost.

Death of Stephen H. Williams.

It becomes our painful duty to notice the demise of another worthy and good man, who in his lifetime performed well his part as a citizen and in his family relations, and most worthily and honorably as an architect. He has passed away from the vexations, trials, and disappointments of time, to mingle in those scenes and conditions which are and will ever remain mysterious and unknown to those who tread the walks of human life on earth, until passing through the scenes and circumstances of death, each shall for himself learn and realize the great facts and realities which lie beyond the dark valley, through which each in his turn must pass. The record which the late Mr. Williams has left is as nearly without a stain or blemish as is common to the best of men. We have never heard a reflection cast upon his integrity and sterling honesty, and in his death the architectural profession looses one of its most esteemed and honored members. Knowing well the high esteem in which he was held by the profession generally, we but express a sincere and general sentiment in saying that we, in common with all other architects in this city, extend to his bereaved family heartfelt and earnest sympathies. Our personal acquaintance with Mr. Williams dates from 1852, since when we have known him intimately, and during the period from then until his death, we know of nothing that can possibly reflect discredit upon his name or memory.

Mechanics' Lien Law.

In compliance with requests from owners, architects, material-men and others, we present in this issue a digest of the Mechanics' Lien Law, as it now stands upon the statute books of this State.

There was no new lien law passed as a whole by the late Legislature, but the law of April 11th, 1872, was amended. The amendatory portion is printed in italics:

§ 1183. Sec. 1. *Mechanics, material-men, artisans, architects and laborers of every class, performing labor upon or furnishing materials, to be used in the construction, alteration or repairs of any mining claim, building, wharf, bridge, ditch, flume, aqueduct, tunnel, fence, machinery, railroad, wagon-road or other structure, shall have a lien upon the property upon which they have bestowed labor or furnished materials, for the value of such labor done or materials furnished. This lien shall not be affected by the fact that no money is due, or to become due, on any contract made by the owner with any other party.*

Sec. 2. *This Act shall take effect immediately.*

§ 1184. Provides that liens shall apply to lots and premises "in any city or town, in front of which grading, filling in, or otherwise improving the same," shall be done at the instance of the owner.

§ 1185. Provides that the lands upon which buildings etc., may be constructed, "together with a convenient space about the same, or so much as may be required for convenient use and occupancy thereof, is also subject to the liens." Also in reference to lease-hold interests.

§ 1186. "The liens provided for in this chapter are preferred to any lien, mortgage or other incumbrance which may have attached *subsequent* to the time when the building, etc., etc., were commenced." The building or improvement may be sold separately from the land, and the purchaser have thirty days for removal of same, upon payment to the owner of the land reasonable rent for its use, from the date of purchase to the time of removal. If removal is prevented by legal proceedings, said thirty days to run from the final determination of such proceedings.

§ 1187. Provides, "Every original contractor, within sixty days after completion of his contract, and every person, save the original contractor, claiming the benefit of this chapter, must within thirty days after the completion of any building, improvement, etc., etc., file with the county recorder of the county in which such property, or some part thereof, is situated, a claim containing a statement of his demand, after deducting all just credits and off-sets," etc., etc.

§ 1188. Provides that where a lien covers two or more buildings, etc., the amount due on each must be specifically designated. Otherwise, the lien of such claim is postponed to other liens, etc.

§ 1189. Provides the duties and fees of the recorder.

§ 1190. Provides that liens do not "bind any building, etc., for a longer period than ninety days after the same has been filed, unless suit be brought in a proper court within that time to enforce the same; or, if credit be given, then ninety days after the expiration of such credit; but no lien continues in force for a longer time than two years from the time the work is completed, by any agreement to give credit."

§ 1191. Provides for service of summons by publication.

§ 1192. Provides that if an owner shall, etc., within three days after he obtains knowledge of the commencement of work on premises owned by him, "post" a written notice in some conspicuous place upon said land, or upon the building or other improvement situated thereon, he shall not be liable.

Note.—This provision applies only in cases where improvements are being made by the lessee. The owner of the land cannot avail himself of this provision in the improvement of his own property; and further, unless he so notifies, his land is liable to the lien for debts contracted by a lessee.

§ 1193. Provides that original contractors must, at their own cost and expense, defend all lien suits commenced by sub-contractors or other parties. Owners may withhold all moneys due, while such suits are pending, and until settled. Owners may have recourse upon contractors to recover moneys daid in excess of contract amount.

§ 1194. Classifies liens.

§ 1195. Any number of persons—lienors—may join claims in action.

§ 1196. Provides that the moneys of a contract cannot be attached for indebtedness due in other directions, outside of those involved by the contract.

§ 1197. Creditors are not debarred by the provisions of this act from proceeding against parties liable, by civil suit.

The foregoing furnishes a correct general understanding of the law, as it appears in the statute books, aside from its legal technical surroundings. Statutes which sometimes appear plain enough to the common mind, in their worded construction, often present quite a different phase and meaning, in passing through the ordeal of legal twisting and construction, sometimes almost on a par with the verdict of a trial jury, who having heard the testimony in the case of a man indicted for stealing a pair of leather breeches, returned a verdict—"Guilty of murder in the second degree." The court having directed the attention of the jury to the character of the indictment, they returned to the jury-room for further consideration of the case, and after due deliberation, again appeared in court with—"May it please your Honor, we can make no more or less of it than murder in the second degree." We therefore advise those who become involved in lien difficulties, not to attempt the management of their cases, without the assistance of a thoroughly qualified attorney; and it should not be forgotten, that lawyers, like architects, builders, doctors, etc., differ vastly in qualifications.

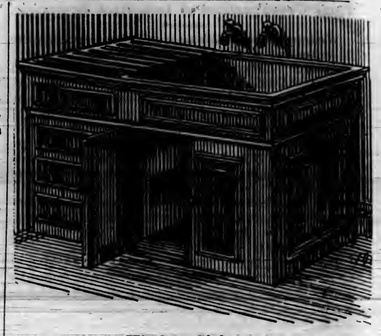
The force and effect of the law, as it now stands, *virtually* nullifies all contract covenants and agreements between owners and contractors, as far as the payment of moneys are concerned, in cases of default or neglect on the part of contractors to settle all claims: that is to say, if the contractor fails to pay all indebtedness created by him for labor performed, or materials furnished, the owner of the building, improvements, etc., etc., is held by and under the law, bound to pay or satisfy all such indebtedness, although he may have paid the contractor the full sum of contract, and hold his written acknowedgment for the same.

Whether this written provision of law will be sustained by the Supreme Court, should it be submitted to that tribunal for arbitration, is a question for the future. But if owners will act wisely, and join contract only with reliable, responsible, and honest contractors, they will have no occasion to concern themselves about either the force, effect or constitutionality of the lien law.

Lien difficulties do not occur with financially qualified contractors, but with that class who have "nothing to lose and something to gain," however much below proper value they may agree to perform contracts. And if owners, for the sake of trying to economize cost, accept the chances which hang over the letting of contracts to such parties, in the face of the law as it now reads, they can only blame themselves for any loss or difficulty that they may experience.

As far as bonds are concerned, they afford an uncertain protection to owners. In thousands of cases in this city, they have proved valueless, and large sums of "good money" have been expended in legal pursuit of bondsmen, who, when they subscribe to the bond, generally consider it "a mere form," without squarely accepting its obligations as binding upon themselves. Consequently, when issues arise, and efforts to recover are made by owners, the bondsmen seek escape from responsibilities through technical or any other possible means; and if overtaken by a judgment, recovery is often impossible, through apparent or positive inability, on the part of the bondsman to pay.

The material questions that present themselves are: is it within the power of a State Legislature, under our form of government, to enact and give legal effect to a law, the practical effect of which annuls and destroys the conditions and agreements of contracts made in good faith, and virtually annuls and sets aside the common law of contracts? Can a party be compelled to pay to a third party, with whom he has had no dealings, an indebtedness created by a second party without the knowledge or consent of the first party, after having satisfied and paid, in good faith, to such second party, all moneys due for any purpose? The lien law says, yes. We await the verdict of the court of final resort.



Kitchen Sinks.

The above cut represents a kitchen sink, fitted up as sinks should be, in all houses where sinks are used. We refer particularly to the arrangement of the doors. As a rule, the "pot closet" under sinks is provided with one narrow single door, which leaves comparatively large spaces at each side of the opening, difficult of access for cleaning, and the cleaning process in such cases is less frequently resorted to than it would be if access was rendered easy. This can be accomplished by making double doors, filling nearly the entire front, so that when the doors are opened, every part of the closet can be easily reached and cleaned. It requires great care and tidiness on the part of housewives and kitchen help, to "keep sinks sweet," and prevent the emission of offensive odor from those most carefully fitted up; while, in the generality of cases, where no special regard has been paid to the nicer considerations, strongly odorous conditions are inevitable. The difference in cost between a sink fitted up properly and a "disease breeder" is not sufficient to justify the economy in any case.

All medical and sanitary science bears testimony to the fact that decaying animal and vegetable matter—the agencies producing bad odors at sinks—is fearfully detrimental to the health of those thrown in constant contact with it.

Free to All.

The columns of this journal are open to all who differ with us upon any subject presented. We are too old in years and experience to assume that we have passed the reef of human liability to err, or for one moment to suppose that we have reached the realms of thought where perfection reigns supreme. But this we do assure—that whatever of error there may be contained in our columns will be speedily corrected, as soon as attention is directed thereto, and we are convinced of the error. We will give place to a reply in any case, when a mistake or wrong statement has occurred. It is our desire and purpose to be fair, just, and correct in all things, and do no person or subject any violence. We therefore invite free discussion and criticism, and again state that the columns of this journal are at the service of all who desire to differ with us upon any theory or subject, or who take exception to anything at any time appearing in our columns.

MORTALITY OF MEN AND WOMEN.—In a report on the statistics of English mortality, Mr. Welton states that for the last 30 years more women have survived to the high age of 75 to 80 than men. The latter suffer more from diseases of the lungs, heart and kidneys, and the lung diseases have latterly increased in England.

LIMESTONE FOR DWELLINGS.—A Texan professor has written a pamphlet to prove that cities built of limestone are the healthiest in the world, and never much visited by malarial diseases, including yellow fever. The limestone is said to absorb carbonic acid arising from animal and vegetable decomposition.

The Temperature of the Sun.

To the Editor of the Scientific American:—On page 405 of your issue of June 26th, 1880, in the article entitled "What is the Temperature of the Sun?" I discover a singular error. Mr. Sawyer estimates the diameter of the earth's orbit to be 190,000,000 miles, and the diameter of the sun at 800,000 miles, the diameter of the orbit being 237.5 times the sun's diameter. He thereupon computes the surface of the imaginary hollow sphere of 190,000,000 of miles diameter at 237.5 times that of the sun, instead of using the *cube* of 237.5 as the multiplier. Correcting this error, Mr. Sawyer's figures would make the temperature of the sun 1,339,648,437°, which will hardly corroborate his first estimate, in which all the sums on which he bases his calculations are assumed.

O. E. TOWN.

Washington, D. C., June 21st, 1880.

To the Editor of the Scientific American:—In your paper of June 26th, 1880, there is an attempt to answer this question.

By a comparison with that of the voltaic arc, W. E. Sawyer finds the temperature of the sun to be "not less than 12,000°, nor more than 50,000° Fah.," and then, in "another way," evidently peculiar to himself, he obtains a similar result. The *other way*, Mr. Editor, is unique! Look at it a little. Assuming the mean distance of the sun to be 95,000,000 miles, Mr. Sawyer proceeds to obtain the diameter of the earth's orbit by doubling its mean radius and adding 800,000. Why add the diameter of the sun? He evidently is not aware that the linear distances of heavenly bodies are calculated from center to center.

Again, imagining the diameter of the earth's orbit to be that of a hollow sphere concentric with the sun, he states that the surface of that sphere would be "237.5 times the surface of the sun," because, forsooth, "the diameter of the sun is contained in the diameter of the earth's orbit 237.5 times." Mathematics teaches that *similar surfaces vary as the squares of their homologous lines;* that is, the surface of the hollow sphere will be to that of the sun as the square of 237.5 is to the square of 1, as 56,406.25:1. Now the heat from 1 square foot of the sun's surface will be spread over 56,406.25 square feet of our assumed sphere, and its intensity on 1 square foot must be less than 1-56406 of what it is at the sun. If, then, we take the assumed mean of 100° at the earth, the temperature of the sun must be 5,640,625°, which corresponds more with the figures of "those who have estimated into the millions" than with what W. E. Sawyer has observed in electric temperatures. T. ROBINSON.

Washington, D. C., June 21st, 1880.

Patent Water-Closets.

A correspondent writes, asking whether it is possible to find a patent closet, entirely safe, in a sanitary point of view, for use inside of buildings. We answer, yes; there are several, each possessing its own special qualities and excellencies. But we are not at liberty to name any particular closet as superior to all others. In our advertising columns, several dealers in and manufacturers of patent water-closets speak for themselves. Call and examine, and judge for yourselves; or, still better, take with you a competent, intelligent, and disinterested architect or plumber, and be governed by his advice. But a selection of the best closet is not the only matter of necessity. Its proper and skillful setting and fitting up is quite as important. This can be done only by a competent, intelligent plumber, who fully understands sanitary principles and necessities. The defects complained of are as often the fault of the plumbing work as of the closets themselves.

Increase of Subscribers.

Since last issue, a large number of subscribers have been added to our list. We hope this will continue, and that in a short period of time the number desired—TEN THOUSAND—will be fully made up. We are anxious to demonstrate that an architectural journal can be produced in San Francisco comparatively equal to any published in any other city, and the helping hand of a generous community is all that is needed to produce this result.

How to Pay a Compliment.

To pay a high compliment is to tell the truth, and to tell it as though you mean it. And the only way to do that is to mean it. If a girl is pretty or accomplished, if she plays well, or sings well, or dances well, or talks well; in a word, if she pleases, why in the name of common sense shouldn't she be told of it? Don't blurt it out before everybody. That will only make her feel uncomfortable and make you appear ridiculous. Say it quietly when opportunity offers, but say it strongly. Convey the idea distinctly and fully, so that there may be no mistake about it. But don't do it "officially." Formality is about the coldest thing known. More than one maiden has been made happy—say for half an hour—by a man's taking the trouble to say a pleasant thing about a toilet that he liked, and many of fashion's follies have been given up by girls when they noticed a discreet silence concerning them on the part of their gentlemen friends. A bewitching little black-eyed beauty once said to a gentleman: "I like to have you say sweet things to me, it seems to come so easy and natural." In general terms, it may be said that it is always better to say an agreeable thing than a disagreeable one; better for all parties. The gallant who, when a young lady stepped on his foot while dancing, and asked pardon, said, "Don't mention it; a dainty little foot like that wouldn't hurt a daisy," not only told the truth, but doubtless felt more comfortable than the boor who, when his foot was stepped on, roared out, "That's right; climb all over me with your great clumsy hoofs."

Successful Treatment of Tetanus.

Dr. John C. Lucas, in the *Medical Times and Gazette*, strongly advocates the treatment of tetanus by smoking Indian hemp. The leaves of the *cannabis indica* are mixed with three or four times their quantity of ordinary tobacco. Directly there are indications of a spasm coming on, the fumes are inhaled until the attack ceases. The patient is then left quiet, but carefully watched, so that the pipe may be instantly handed to him on any appearance of the spasm returning. In this way the patient is kept continuously under the influence of hemp, day and night, nourishment being carefully administered at the same time. The advantages claimed for this mode of treatment are these: 1st. The spasms are cut short; 2nd. They reappear gradually at longer and longer intervals; 3rd. They gradually become not only less frequent, but less severe; 4th. This saves the patient's vital powers. Mr. Khasligir, of India, has also treated five cases of traumatic tetanus, all recovering by this method.

Discoveries at Pompeii.

An almost perfect house has been lately disentombed at Pompeii. It is probably the best preserved of all the Roman dwellings hitherto discovered. There are two atria and a very spacious peristyle, in the middle of which there is an ornamental fountain. There is also a complete bath, which must assist in clearing up some of the doubtful points concerning the arrangement of Roman baths. The paintings in the interior of the house seem to have been executed with considerable taste, and they are in good preservation. Those on the first floor, representing for the most part marine animals, are especially interesting. The frescoes also which are contained in the wings of the building are excellent representations of scenes from animal life. They are so admirably preserved that they cannot fail to shed much light on the condition of painting among the Romans at the time, although they also give evidence of the influence of Greek art.—*Scientific American.*

Fastest Time on Record.

Train No. 4 of the Pennsylvania Railroad recently made the fastest run on record from Philadelphia to Jersey City. The train consisted of locomotive No. 724 and two cars. Edward Osborne was the engineer, and Lewis Lilance conductor. The train left Philadelphia at 12:51, and Jersey City was reached at 2:24 P. M., the trip of ninety miles having been accomplished in precisely ninety-three minutes. Four stops were made, and twice the train was slowed up to cross bridges.—*New York Sun.*

Say-so's.

It is surprising to see with what industrious and delicious avidity men will gather together "yarns" and "say-so's," and manufacture them into whole cloth misrepresentations, for the purpose either of injuring others or securing for themselves undeserved advantages, or, still worse, for the mere gratification of corrupt impulses, from which neither they nor others profit, while innocent parties may be made to suffer. A lie is the filth of the human tongue, and as mud or other polluted matter may be removed from the garments of men and women, so may falsehood, by the whip of truth, be brushed off. But it is difficult to prevent a stain in either case. The lie may be wiped out; but, generally, it makes its mark upon the feelings of those against whom uttered, if in no other form.

There is *moral*, if not *legally criminal villainy* in every deliberately concocted untruth uttered, both in the first guilty party—the originator—and those who *peddle around*, as true, statements not known to them as truthful; and all attempts to qualify false assertions by "I heard so," "*They* say so," "It is reported around," etc., simply illustrates the pusillanimity of those who do these things. And those who skulk behind such gauzy defenses are no better than the brainless parrot, whose tongue has been trained to express blasphemous words and sentences for the gratification of vicious minds. No man should be permitted to escape condemnation who gives utterance to statements in any part false. In all matters affecting the reputation of others, the seal of silence upon the tongues of honest men remains unbroken, until exact facts are positively known. It is only knaves and simpletons who give indiscriminate utterances to speculative and untruthful stories.

GUNTER'S CHAIN.—About the beginning of the seventeenth century Edmund Gunter devised the lineal measure called "Gunter's Chain," to facilitate the measurement of land and the computation of acreage. He made the chain consist of 100 straight links, each 7.92 inches long, in order that square links may be at once converted into acres by shifting the decimal point. For 7.92 inches=.22 of a yard, and the square of this=·0484 of a square yard=the 100,000th part of 4,840 square yards, or of one acre; so that square links are converted into acres by dividing by 100,000, or by merely removing the decimal point five places to the left. (*Ex.* A rectangular field measures 825 links by 430. How many acres does it contain? 825 square links×430 354,750 square links. Now, one acre being 100,000 square links, the area just found, being divided by 100,000, or what is the same thing, having a decimal point inserted before the fifth figure from the right, become s3.5475acres, or 3 acres 2 roods, 7.6 perches, *Ans.*) Gunter's chain is the land surveyor's instrument for measuring the distance between two extreme points of a field. The hundred links into which it is divided are joined by rings, and at every tenth link, from each end to the middle, is attached a notched piece of brass, that at ten links having one notch, that at twenty links having two, etc., and that at fifty links, the middle of the chain, having a plain circular piece of brass. For measuring short side distances perpendicular to the main line of measurement, a staff, usually ten links in length, is used, called an offset staff.—*Illustrated Carpenter and Builder, London.*

D. J. SULLIVAN, a prominent builder of Binghamton, died May 22d, of malarial fever contracted at the Insane Asylum building, where he had been making alterations and repairs. Malaria from an old sewer that formerly extended underneath and through the center of the building is thought to have caused sickness of many of the men engaged on the work. Three of them died. How many other public institutions are in the same condition? We fear, too many.

In the *Sanitary Record*, Dr. Notter argues the necessity of choosing healthful sites for dwellings, and shows that made soils are especially deleterious as nurseries of zymotic diseases. He condemns building on the banks of lakes or on the declivities of hills, houses in such places being subject to dampness. As a general rule, the most elevated sites are the most sanitary and least exposed to the visits of malarial complaints, while the vicinity of a graveyard produces exhalations injurious to health, especially in cities.

Our Illustrations.

We present this month a set of designs worthy the attention of owners who contemplate improving their property. In the erection of buildings, it is the easiest thing imaginable for an architect to vary the cost one hundred per cent. Owners sometimes think themselves very smart in securing buildings at small cost, when, in fact, they may be paying full value or more for the building obtained. When money is spread out over quantity, *quality* must suffer.

The plans and elevation "A" delineate a two-story tenement, suitable for a 25-ft. lot. The basement plans show four rooms, in two apartments, closets, etc., and an alley-way of three feet. Such apartments meet the want of a class of persons who cannot afford better quarters. The main floor contains parlor, dining-room, kitchen, two chambers, bath-room, and excellent closet conveniences. The second floor, with its separate entrance, is the same as main floor, with the hall bed-room additional. We have erected quite a number of this class of buildings, and we know of none that rent more readily, nor any that pay better, the cost ranging from $3,300 to $4,500, according to manner of construction and character and style of finishes. In one case, the building cost $3,400, and before it was completed, all the apartments were rented, at a total rental of $103 per month, and this, too, on a small street, but well "down town." They are comfortable and convenient in arrangement, and afford pleasant homes for persons of limited means.

Plan and elevation "B" represents a desirable one-story cottage, suitable for a 25-foot city lot, leaving a 3-foot alley-way at one side—the building being 22 feet wide. The plans show the arrangement of rooms, halls, closets, etc. It can be built at an expense varying from $1800 as a maximum, according to manner of construction, and character of materials, and finish used. The use or omission of fancy iron cresting, simplification or elaboration of finish, etc., will, of course, affect the amount of cost considerably. The bath-room is designed to be lighted and ventilated by a skylight. If built on a larger lot, or in the country, where there is no restriction in the amount of land occupied, the dining-room may be enlarged by extension sideways, or by bay windows, and the same on the opposite side, which would add to general outside appearance, and increase conveniences. A hipped roof might also be added.

Plans and elevation "C" represent a one-story cottage, with parlor, dining-room, kitchen, two chambers, bath-room, store-room, and splendid closet conveniences, with the further possibility of making additional rooms in the "loft." We present this as a model cheap plan, both in interior arrangements and exterior design. At an increased cost, improvements might be made, by extending the hall through beyond the dining-room, extending the dining-room, by a projection, beyond the face of the side wall, and adding other bay windows. But as it is, it is convenient, and the rooms of good size. It is designed for a country residence, or for a lot of say 50 feet frontage; the greatest width of the building being 38 feet. Its cost will vary from $3,000, according to manner of construction and character of finish.

Gratifying.

Many of the original articles written by us, and first appearing in this journal, have been extensively copied in Eastern journals. This reference is made, not from feelings of personal vanity, but as an evidence that the management of the *first and only architectural journal published on the Pacific Coast*, has to some extent secured a good reputation for San Francisco in the publication line. We have heretofore stated that it would become the representative journal of the architectural and building interests on this Western slope, and this is to a certain extent substantiated by the fact stated. All that is required to make it world-wide known, and generally appreciated, is a sufficient number of yearly subscribers. Give us these, and there need be no fear of the other certainty, viz: that it will contain monthly, a vast amount of highly valuable and instructive matter. Measures will keep pace with means, and the faster and more freely the latter comes to hand, the more vigorous will be the former.

Preservation of Buildings from Fire.

A paper on "The Great Fire of London in 1666; its causes and results," was read at the last meeting of the Manchester Scientific and Mechanical Society by Mr. J. L. Savage, deputy superintendent of the fire brigade, Manchester. He showed that the fire was undoubtedly due to incendiarism, an outcome of civil and religious commotion. Vast as was the extent of the conflagration, the wonder was that it did not extend further, when it was remembered that the streets of ancient London were narrow and crooked, with many courts and alleys, that the buildings were constructed largely of wood, and had overhanging eaves and many projections. So narrow were many thoroughfares that persons in the houses of one side could shake hands across the street with their neighbors on the other side. The further progress of the fire was largely checked by the existence of open spaces and wider streets on the outskirts of the city, where also there were many houses built of brick. The only fire-extinguishing apparatus in existence at that time, so far as he had been able to ascertain, consisted of leather buckets and hand-squirts, three inches in diameter and eighteen-inch stroke, used in the same way as ordinary syringes, whilst the water supply was obtained from wells and the dirtier part of the Thames. Mr. Savage asked what benefit had resulted from the terrible lesson of this fire. The introduction of brick walls generally, but that was about all. The extent of the floor area, numerous windows overlooking those of other premises, hearths laid upon timber, and timber laid in too close proximity to flues, beams resting upon stone corbels instead of being put right into the walls or upon pillars—all these things had received too little consideration as sources of danger. He instanced the great fire in London in 1861 as illustrating, amongst other things, the danger of the windows of one warehouse overlooking another in close proximity to it, and the utter failure of what was then considered the finest fire-proof building in the world. In order to stop the spreading of a fire from building to building in a continuous line whatever the contents, short of explosives, it was only necessary to have a well-built party wall carried through the rooms up to and three feet above the highest part of the roof. Then, provided no timber was let into the walls or opening made in it in any part, a fire in one building, even if it was allowed to burn itself out, would not do the slightest injury to the next. The placing of the windows of one building overlooking another should be avoided as far as possible. "A"-shaped roofs should be discarded, and "V"-shaped roofs substituted, whilst he had a very strong objection to Mansard roofs, which had a tendency to encourage the spread of fire to other buildings. A new kind of building was coming into use made entirely of iron and glass, with timber floors. For a spinning-mill he had no objection to this kind of structure if it had the usual brick floors, and if the iron columns were well coated with plaster, because in a spinning-mill there was not sufficient inflammable material to heat the iron-work to a very high temperature. He was perfectly aware that in spite of what he or anyone else might say buildings constructed largely of iron would become more numerous. He would suggest to those who designed them the advisability of having plenty of metal in the outside columns, which should be well covered with plaster, and of having the roof made of the flimsiest possible material, so as to allow the fire to ascend straight into the air, little coming through the windows, and so avoid igniting other property. He said, in conclusion, he thought architects would act wisely if they sometimes consulted practical firemen in relation to the construction of buildings.—*English Exchange.*

WAXING FLOORS.—The following is a good recipe for waxing floors, and the method of application. Stir 25 parts of shredded yellow wax into a hot solution of 12 parts of pearlash in soft water. Keep the mixture well stirred until the effervescence ceases, then remove it from the fire and stir in 12 parts of finely-ground yellow ocher. It may now be poured into cans to cool. When wanted for use one part of it is dissolved in five parts of boiling water. Apply warm with a paint brush. It dries in a few hours, when the floor is polished with a floor-brush, and afterward wiped with a woolen cloth. It is said this wax coating will last for six months with ordinary use.

The Vesuvius Railway.

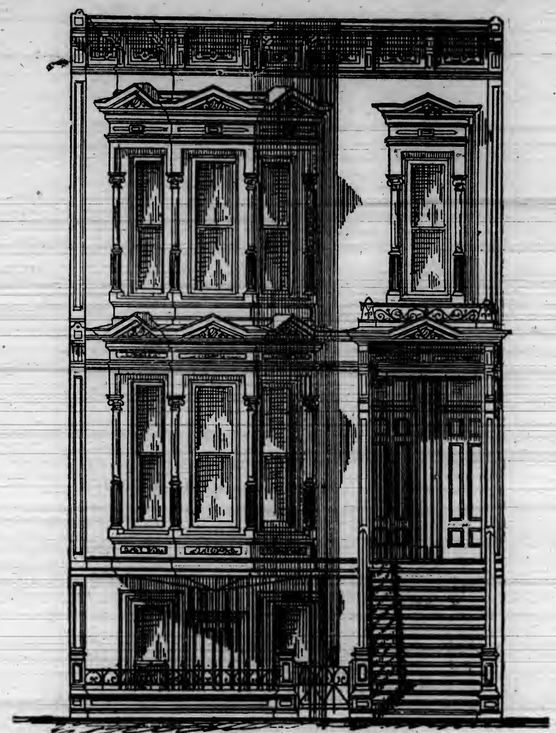
A correspondent of the *Daily News* supplies the following account of the new railway. At the foot of the cone of Vesuvius there is now to be seen the new station of the railway which ascends to the summit of the old crater, and in future will spare the lover of natural phenomena a wearisome climb. The station is situated on a level spot on the west side of the mountain, about half an hour's walk from the Observatory. As before, the traveler must reach the Observatory from Resina by carriage or on horseback, but he need not dismount or leave his vehicle until he has arrived at the new station, to which the broad road has been continued. The constructors of the railway have adopted the American double iron rope system. There are two lines of rails, each provided with a carriage divided into two compartments and capable of holding six persons. While one carriage goes up the other comes down, thus establishing a counterpoise which considerably economizes the steam of the stationary traction-engine. The incline is extremely steep, commencing at forty degrees, increasing to sixty-three degrees, and continuing at fifty degrees to the summit. Every possible precaution has been taken against accident, and the railway itself is protected against possible flows of lava by an enormous wall. The ascent will be made in eight to ten minutes, while before it required from one to two hours. To obtain the necessary supply of water, large covered cisterns have been constructed, which in winter will be filled with the snow that often falls heavily on Vesuvius. This snow will be quickly melted by the internal heat, and, besides the water thus obtained, the frequent rainfall will also be conducted into the cisterns. An elegant cafe-restaurant capable of accommodating a hundred persons will be attached to the station. Above the entrance to the latter is an ample terrace supported on columns, whence an enchanting view is obtained not only of the Gulf of Naples, but also of those of Baie and Gaeta, each dotted with its islands, while to the north spreads the luxuriant plain of Caserta, bounded by the distant Apennines. Though the iron road may take away some of the poetry and adventure connected with an ascent of the fiery mountain, it must not be imagined that the charm of risk will be entirely lost. On reaching the top there is still the new and smaller cone to be ascended, and no longer ago than last Sunday an acquaintance of mine was there nearly struck down by a large block of glowing lava, which fell at his side with a terrible noise. With a very little extra exertion of his strength the Titan Vesuvius can at once put an end to all our puny attempts at conquest, and destroy in an hour the labor of months. For the sake of the enterprising originators of the new railway, let us hope that this may never be the case.

Poverty and Health.

Poverty is repugnant to every sentiment and feeling of human nature, and every being that lives, desires and seeks to rise above its humiliating levels. But its severest inflictions, its greatest privations and restrictions, modified by good, sound, robust health, are preferable to the possession of the wealth of worlds, if to gain and possess them, aches, pains, and prostration of body and mind, and enfeeblement of intellectual and physical energies are to be endured, in which all that makes life desirable fades away in the shadows of unrealized hopes and ambitions. Far better to draw the lines of contented life straight and sharp, and walk by them, studying and practicing in social and business life those rules of right, moderation, and contentment, which lead to pleasant bowers, when time and advanced age shall have changed to silvery whiteness the raven locks of youth.

Questions and Answers.

We shall take pleasure in answering all questions propounded, to the best of our abilities, upon all matters and subjects architectural, mechanical, scientific, legal, in reference to building interests, Mechanics' Lien Law, and all others pertinent to the character of this journal. We shall use all legitimate means to render it worthy the exceptional support so generously extended, and to increase its value and interest to all concerned.



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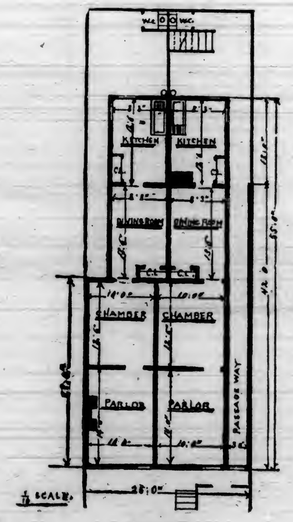

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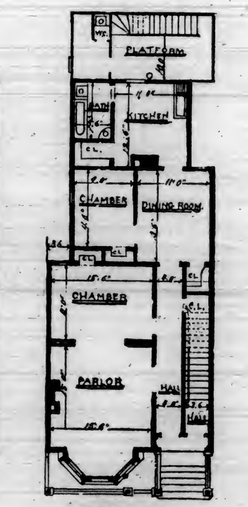

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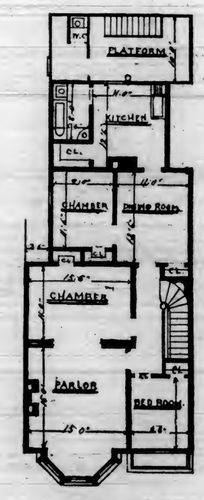

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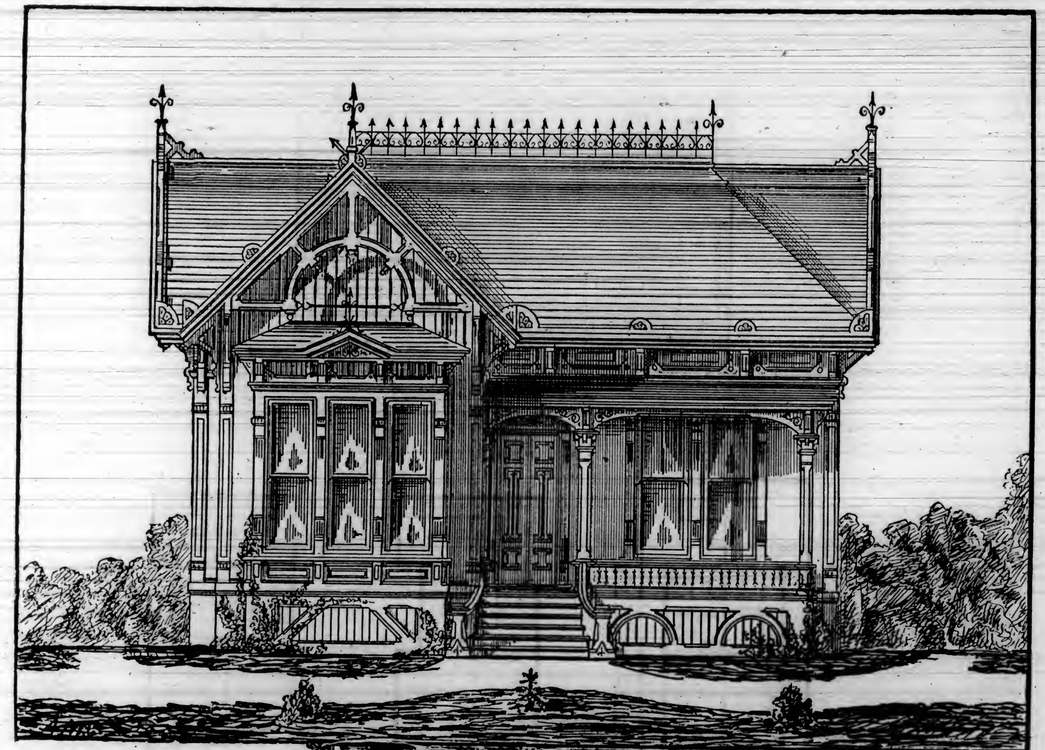

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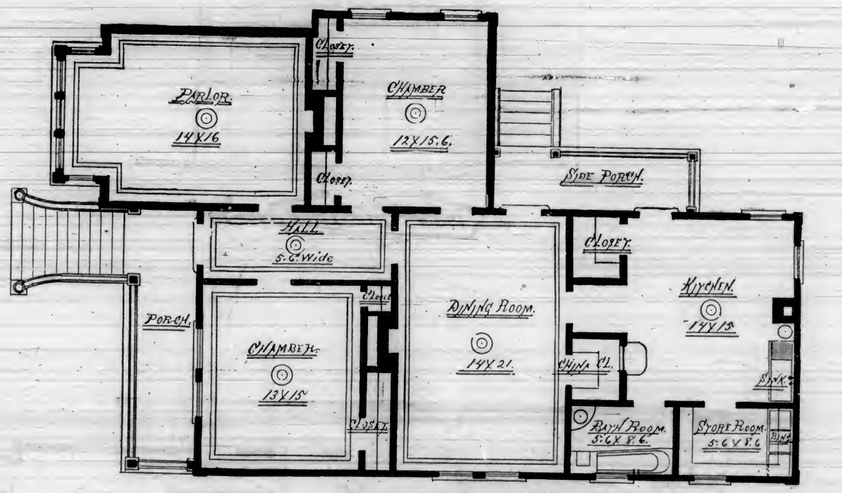

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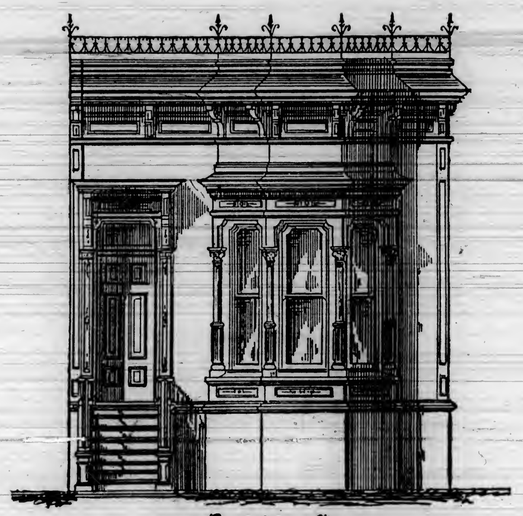

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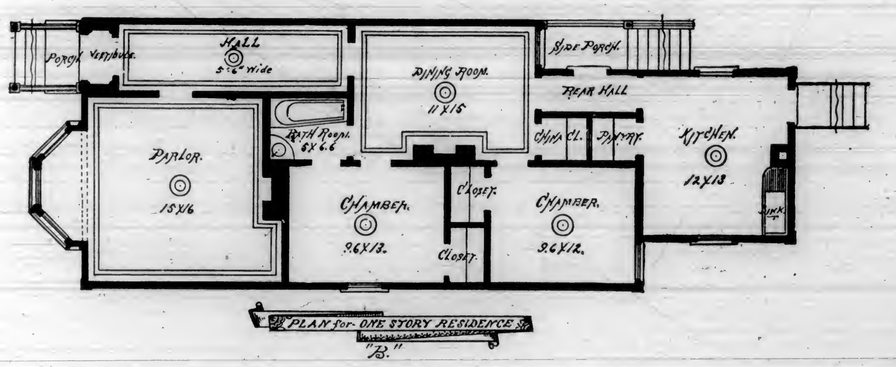

PLAN for ONE STORY RESIDENCE

"B."

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Underpinning Wall.—Who is Responsible?

In the April number of this journal, in answer to T. J. W., we presented what we supposed to be the law in reference to the underpinning of buildings, next adjoining contemplated ...lar improvements. The opinion then expressed, was based upon and in strict accordance with the city ordinance regulating the matter, and was so far correct. Since then, our attention has been directed to the following decision of the Supreme Court, which materially changes the aspect of the case, if the finding is final and complete as applying to all similar cases. In 1875, the question of liability in such cases came before the Fourth District Court, in the case of Zeile *v.* Hood. The defendant, Hood, caused certain excavations to be made on his lot, next adjoining the property of the plaintiff. The depth at no place equaled fourteen feet. Hood gave notice to Zeile to underpin his wall, which he, Zeile, refused to do. Hood proceeded with his excavation, and placed temporary supports under the wall of Zeile's building, simply sufficient to prevent the fall of said wall—presuming that the city ordinance made it obligatory on Zeile to take care of and underpin his building. Zeile commenced action to recover the full cost of underpinning, and Hood filed a cross-complaint for $155, the amount of cost for temporary supports. The court found as follows:

1st. That plaintiff and defendant were the owners of the respective properties.

2nd. That the excavation made deprived plaintiff of the support of the adjacent lot, endangered the safety of his, plaintiff's, building, and rendered the underpinning of the wall, to the depth of defendant's excavation, a necessity. That defendant did erect partial, but not sufficient, supports under said wall. That defendant did not use proper care in making his excavations, and failed to take precautions to *sustain* the land and building of the plaintiff. That the defendant having refused to underpin, the plaintiff was compelled to do so at a cost of $410.50. The court found as a conclusion of law, that plaintiff had been damaged in said amount of $410.50, and is entitled to recover. Defendant is not entitled to recover upon his cross-complaint. Judgment entered April 19th, 1875. Affirmed by the Supreme Court August 5th, 1878, under sec. 832 of Civil Code.

This decision appears to settle the question, that the city ordinance, which provides that where excavations are made to a depth not exceeding fourteen feet, the owners of adjoining properties must underpin and protect their own premises and buildings, is a dead letter. But it does not, to us, appear plain, that the vital point in issue has been finally and fully determined by this decision.

Section 832 Civil Code, reads:

(1) "Each coterminous owner is entitled to the lateral and subjacent support which his land receives from adjoining land, (2) subject to the right of the owner of the adjoining land, to *make proper and usual excavations on the same, for purposes of construction,* (3) on using ordinary care and skill, and taking reasonable precaution to sustain the land of the other, and (4) giving previous reasonable notice to the other, of his intention to make ... excavation."

Clause (1) of section 832 gives certain *conditional* rights to "coterminous owners," which conditions are expressed in clause (2), with the restrictions expressed in clause (3). The only question of doubt that appears, is in this particular part of the section, as to what is meant by "taking reasonable precaution to sustain the land of the other." Is it a fair construction of the English language, to say that it means that the party excavating shall build a brick wall under his neighbor's building? The section clearly defines that the party excavating, shall enjoy certain rights, for certain *specific purposes;* and so long as he does not exceed these, we fail to see by what system of logic or legal reasoning, responsibilities not expressed can be imposed. Clause (4) certainly supports this view of the case, by its requiring a *reasonable notice of intention.* Why this notice, if no responsibilities rest upon the party notified? Is not the notice intended as information to him, that a certain something is about being done, which will require his attention? If the whole responsibility rested upon the party excavating, it would simply remain for him to proceed with the work, and protect and underpin the adjoining property, without any notice to or interference from any other party, he alone being responsible, under this view of the case, for all consequences. We, therefore, presume that the defendant in the case quoted, did not use "*ordinary care and skill*" in making his excavations, and this fact resulted in the finding as reported. Unless it be conceded that "taking *reasonable precaution to sustain the land of the other,*" is intended to mean something, not by any means clearly expressed in any part of the law cited, to wit: the erection of a brick, stone, or some other description of wall, under the building owned by the other party.

A Good Trap.

A sample of "Garland's Improved Trap, for wash basins, sinks," etc., etc., has been left at this office. It is well recommended to us by plumbers who have used it, and in our opinion is a secure preventive against sewer gas. It proposes entire safety in the event of syphonage, or the emptying of the trap of water by evaporation. This device is of California invention, and as we have heretofore stated in this journal, we shall from time to time notice with pleasure all inventions of California origin upon their merits, without any disposition to "puff" any; and we hope that our patrons will so understand us. This trap is strongly indorsed and recommended by many leading architects and plumbers.

ANCIENT REMAINS FOUND IN RUSSIA.—The Chersonesus appears still to be rich in antiquities, notwithstanding the explorations and plunderings that have taken place by Huns, Tartars, and Cossacks during hundreds of years. In this city the Hermitage contains a very interesting and valuable collection of costly relics, many of them in gold, beautiful specimens of Greek art, found in some of the tombs in the neighborhood of Kertch. Among the choicest are the laurel leaves of the finest gold which adorned the victor's brow, with other objects, carrying the observer back to the every-day life of the period. In the tomb of a woman were found the very box of vermilion and the stencil with which the owner added to her charms some 2,000 years ago, her "household gods" buried with her, and now unburied, showing that the customs of the fair sex of twenty centuries past were identical with modern times in the matter of outward adornments. It appears that valuable treasures are yet to be obtained in this rich field of antiquities, as will be seen from the details of very costly gold ornaments that have just been discovered by the fortunate director of the Kertch Museum. He found, in the early part of September, near the road between Temruk and the station of Sennaia, a tomb of the third century before the Christian era, in the reign of Persidas II (?), King of the Bosphorus. The tomb must have been that of a highly-born damsel. It was found to contain a gold collar of the thickness of an ordinary lead-pencil, in one piece, ornamented with a lion's head at each end; a gold crown, an inch wide, the outer part formed of rings linked together and ornamented with fine stones; in the center is a swan, with Cupid on its wings; gold earrings, with two pomegranates of oval form, and a small piece of malachite in the center; a gold chain, with figures of a sheep's head at the ends; gold earrings, with pomegranates; a very heavy chain; earrings of a very fine workmanship; two bracelets of heavy work; a round gold brooch and pin, representing Venus holding Cupid in her arms; four gold leaves, a pearl collar with clasp, amulets, three very small gold rings, a silver flagon, a silver lachrymatory, a silver vase, cup, silver spoon, remains of silver articles, and a tooth of the young girl.—*Journal of St. Petersburg.*

Earthquake Warnings.

In a recent lecture on the possibility of foretelling earthquakes, Professor Palmieri expressed the belief that by means of seismographic stations, telegraphically connected, for registering and reporting preliminary earth-tremblings, it would be possible to foretell earthquakes just as tempests are now foretold, and to issue warnings to threatened districts about three days in advance. He did not expect to live to see such a system in operation, but he hoped, and in a measure expected, that posterity would be benefited by its universal and permanent establishment.

Review of the Bulletin's "No. 3 of the Series."

That motives and purposes underlie every intelligently performed act and expression of mankind, in all the relationships of life will not be disputed by any one.

Those *expressed* by the *Bulletin*, in connection with its "series of plans for cheap buildings," which proposes to assist persons upon whom only the dews, not the copious showers, of wealth have descended, to secure homes for themselves at about the cost of the *unwrought materials*, would certainly deserve commendation, and receive the approval and indorsement of architects and builders generally, if the propositions were fair and right, or at all consistent or within the range of facts or honest possibilities.

In depressed general trade and commerce, goods and merchandise, and even lands and houses, may be purchased at an "awful sacrifice,"—far below actual cost; but in the erection of new buildings there is a substantial value in every foot and pound of material required in their construction, and a proper compensation due for every hour of labor employed. And any project which in effect seeks to demoralize legitimate trade and mechanical operations, and reduce them to non-paying systems, is unwise and destructive to the common interest of all concerned.

It is, therefore, reasonable to conclude that the *unwritten* motives of the *Bulletin* have led it into an arrangement to produce a series of plans and specifications which, whatever the motives of the *Bulletin* may be, are delusive in character and merit, and particularly so in reference to stated cost.

In the April number of this journal we reviewed the "first of a series," fairly showing inaccuracies in the plans and discrepancies in the figures; and in the June number, in reply to the criticisms of the *Pacific Land Journal and L. S. Gazette*, referred to "number two of series," in both cases plainly stating that the sums mentioned were not intelligently *estimated* values, for no sane man understanding the value of building materials and workmanship would announce any such statement as the result of his correct estimates of the cost of the buildings suggested by the plans and specifications.

The issue we make with the *Bulletin* in this matter is in allowing its columns to be used for the promulgation of representations and statements which are at variance with established and indisputable facts, and the effect of which is to create erroneous impressions and corrupt the minds of property owners, particularly those of limited means, in reference to the proper value and cost of buildings.

While it would be generous to assist owners of lots with small bank accounts to secure homes for themselves at light cost, that assistance should come from other sources than being ground out of men, who, poorer than those for whom they labor, earn their daily bread by the sweat of their brows, and year after year toil on, with nothing beyond a mere living to claim as the result of each twelve months' hard work. In this view of the case, we invite perusal of "*The Building Business and Builders in San Francisco*," appearing in another portion of this journal.

The *Bulletin* having so liberally extolled the superior qualifications of its architect, and pronounced his productions models of correctness and excellence, we shall, without the slightest personal feeling or jealousy toward Mr. Pelton, review and criticise his plans, specifications and figures, and leave the question of his qualifications as an architect to the judgment of the intelligent readers of this journal and the *Bulletin*.

In his "letter" accompanying the plans, Mr. Pelton says: "The accompanying plan (No. 3 in the series) has an area of 1,256 feet." But the correct figures show the following, viz.: Parlor section and hall, 18 ft. by 13 ft. equals 234 ft., from which deduct 6 ft. by 3 ft. 6 in. for the recesses in front of front entrance, and there remains 213 feet. Dining-room section, 22 ft. by 12 ft. equals 264 feet; and kitchen section, 10 ft. by 13 ft., equals 130 feet, or a correct total area of 607 feet, instead of *about* 1,256 feet, as stated by Mr. P. The area of a building is determined by the number of square feet of ground covered by the construction. The area of second floor is the same as that of main floor, less 130 feet off for kitchen section, or a total of 477 feet, which gives for the two floors an area of 1,084 feet, so that if it shall be claimed that the 1,256 is intended as the area of the two floors, still an error of 172 feet exists in Mr. P.'s figures; nor can the discrepancy be qualified by the use of the term "*about*" 1,256, as it is the easiest matter imaginable for any intelligent architect or builder to arrive at the *net* and *correct* measurement of a square or rectangular figure or building. There is no special fatality, however, about this error of measurement, except its forcible illustration of the capacity and qualification of the party making it, as an architect.

The quantity of flooring required for the building is set down at 1,200 feet. The rule of calculation for one-inch or seven-eighths flooring, is to add one-fifth of surface measurement for 6-inch flooring, and one-fourth for narrower widths. In this case, 6-inch widths are specified, consequently, one-fifth of 1,084 feet—that being the true area of the two floors—added to the sum of area feet, determines the number of feet of flooring to be 1,301. We make no allowance for stair-wells, etc., leaving them to make up for the flooring of porches, for which no special allowance is made.

But for the sake of argument, and for the purpose of testing the correctness (?) of the learned architect's figures and calculations, let it be admitted that the area is really 1,256 feet. With this area as a basis, then the quantity of flooring required for the main floor would be 1,256 feet, with one-fifth added, equal to 1,507 feet. Then the area of second floor, being just 130 feet less than main floor, would leave its measurement 1,126 feet, to which add the proper one-fifth, and the result shows 1,351 feet, or a total in the two floors of 2,858 feet, instead of 1,200 feet as stated in the estimate. These figures are ridiculous in fact, but they are fair deductions from Mr. Pelton's statements. If the porches and steps are claimed as part of the area measurement, they add 4x10 for rear porch, equals 40 feet; 6 ft. by 3 ft. 6 in. for front porch, equals 21 feet; 3x5 for front steps, equals 15 feet; and 3x4 feet for rear steps, equals 12 feet; or a total of 88 feet area for outside constructions, which added to the area of the plan, 607 feet, equals 695 feet as the greatest area that can be reached.

Ridiculous.—The specifications say: "Roof-rafters to be 2x4 inches, and 16 inches from center to center.....*and* BRIDGED *in the center, with 2x3 herring-bone bridging, to be* FIXED, etc. Comment is unnecessary.

"*Side-nailed*" flooring is a new feature of nailing which we should like some one to define. "Secret-nailed," "blind-nailed," "tongue-nailed," "face-nailed," "top-nailed," "through-nailed," are all well understood terms; but "*side-nailed*" floors is new.

Stairs.—1½-inch wall and face strings are never used, except in very good or costly buildings, and not always even in the better class of residences. In the class of buildings before us, 1¼-inch wall and ⅞ face strings of *redwood* is the rule. Sugar pine, white cedar, and "hard woods," etc., are sometimes used; but we have never seen Oregon pine, as specified, employed in any case for strings of ordinary inside stairs of dwellings. There is no probability that Mr. P. intended either the kind or thickness of lumber specified for stair strings. Stairs built as specified would be much more costly and in no way intrinsically better than thousands of flights of stairs erected of redwood in better buildings in San Francisco. The unusual, extraordinary, and excessive "strings" specified are decidedly in contrast with 2x3 inch carriages, treads, 1⅛ inches thick, and 6-inch newell. "*Fixed* and glued" is good. External finishes, "*fixed* and finished," and "Put molded redwood gutters to the eaves of the shingle roof, *fixed* with proper fall to down spout," is excellent, if not explicit. Window finishes "*fixed* and finished as shown;" "fanlight over front door *fixed;*" "bath-tub properly framed and *fixed;*" sink "properly framed and *"fixed;* stoops "*fixed* and finished," appear by the specifications to be contemplated "*fixed*" conclusions.

Plastering the "walls, partitions, and ceilings *internally*" is something new. We do not understand exactly how it is done; but we are willing to learn. 1½-inch laths are used in good buildings, but not often in cheap dwellings, and never when expensiveness is a consideration. 10,000 1½-inch laths are consumed, to one hundred of any other width.

Bath-tubs lined with No. 12 zinc is an exception in cheap houses. "Two-inch lead waste pipes" are unusual, extraordinary, and unnecessary, and we question whether any of such size have ever been used in this city, in the class of houses under consideration, nor have we any idea that their use was contemplated by Mr. Pelton.

The specifications say, "*lay on cold water* from the tank to the boiler, bath-room, sink, etc., with ¾-inch galvanized iron service pipes," etc.—thus inferentially intimating that there is to be a boiler in the building; but nowhere in the specifications is a boiler specifically called for, and a majority of plumbers would refuse to furnish and set a boiler, as being included in the specifications. And as a proposition of law, we contend that a plumber could not be compelled to furnish and set a boiler as being one of the items called for by the specifications.

The pretentious appearance of No. 3 of the series fairly indicate inside blinds to at least a portion of the windows, but none are specified.

Graining and varnishing on two coats of paint is the most incomplete and shoddy finish that can be conceived, and the cost of an additional coat of paint would be so trifling, that the proposition is singular, in view of the excess indulged in thickness of stair strings, unusual size of waste pipes, etc., specified.

We have thus hastily criticized some of the prominent items of specifications, because of their great inconsistency and unusual character, and so at variance with *well-regulated customs and practices* as to lead to the conclusion that the party so specifying either does not possess an intelligent understanding of their relative value in house construction, or that they are specified for effect's sake, without any serious intention to enforce their use, should the erection of such a building come under his supervision, which will never occur at the cost stated, under contract with any builder of ordinary intelligence.

"The laborer is worthy of his hire," "Pay what thou owest," "Be honest," "He that provides not for his own household is worse than an infidel," are all righteous truisms; but the man who undertakes the erection of a building, according to the plans and specifications for "No. 3 of series," at Mr. Pelton's estimated cost, will find that he will have nothing for his hire, will not be able to pay his bills, cannot be honest, nor be able to provide for his family, unless he appropriates to his own uses a portion of the contract money, without regard to the payment of his obligations.

We think the *Bulletin* is committing serious errors in this connection. *First*—it is an error to excite or lead people to believe that they can secure results not within the range of possibilities, except at a sacrifice and loss to others. *Secondly*—it is a great wrong toward those whom professedly it is intended to benefit, to induce them to enter into arrangements contemplated by its "series of plans," at the asserted cost; for if there is any one who would agree to build such houses for the sums named, particularly No. 3, it will be with the intent and design to throw the material together in the least workmanlike manner, and pocket whatever of contract moneys they might be able to secure, leaving the misguided and deluded owner to settle the unsatisfied bills, from which owners cannot now escape, under the provisions of the Mechanic's Lien Law of this State (see same elsewhere in this issue.) Those who own lots, and have money in hand or on deposit in any amount, are better "fixed" financially than those who possess neither lands nor money; and we cannot too strongly condemn any proposition, which, in effect, seeks to demoralize mechanical operations, and withhold from hard-working men a just recompense for their labor.

We have had several competent, *good mechanics* figure the value of No. 3 of series, and the lowest estimate is $2,056, presuming the work to be done in a good, substantial, workmanlike manner, with No. 1 materials. This contemplates no more than fair, plain work, omitting some of the *unusual* and *unnecessary* things mentioned in the specifications. It might be possible to contract its erection by some "cheap man," in a sham and "slop-shop" manner, for, perhaps, fifteen to sixteen hundred dollars, or even for the figures of the estimate, as the lien law now stands; for material-men can now afford to sell material to irresponsible parties, upon the security of a contract, as the law plainly declares that an owner, or rather his property, shall be liable for all debts contracted for material and labor in making improvements, it matters not by whom purchased or employed.

Everybody's Column.

We have received so many letters of inquiry in regard to matters outside of our own special business, as well as those pertaining to our particular interests, that we have concluded to devote a column, or whatever space may be necessary, to the answers of our correspondents. We hope our numerous patrons will be pointed in their questions; concise in the language used; write distinctly; give their full name and address, also, if they prefer to have their name given, and if not the "alias" they use, to be written distinctly. As this column is open to all, we shall endeavor to answer any question given to us, in a plain and intelligible manner.

ED. ARCHITECT.—We have lately started a society for the purpose of mutual improvement; the first question upon which arose quite a difference of opinion was: "Which is the most useful of all metals." What is your opinion?
Stockton, July 1st. D. K. C.

ANS.—Iron vessels cross the ocean,
Iron engines give them motion;
Iron needles northward veering,
Iron tillers vessels steering;
Iron pipe our gas delivers,
Iron bridges span our rivers;
Iron pens are used for writing,
Iron ink our thoughts inditing;
Iron stoves for cooking victuals,
Iron ovens, pots, and kettles;
Iron horses draw our loads,
Iron rails compose our roads;
Iron anchors hold in sands,
Iron bolts, and rods, and bands;
Iron houses, iron walls,
Iron cannon, iron balls;
Iron axes, knives, and chains,
Iron augers, saws, and planes;
Iron globules in our blood,
Iron particles in food;
Iron lightning rods on spires,
Iron telegraphic wires;
Iron hammers, nails, and screws,
Iron everything we use.

We would simply add that the above-mentioned metal is worth more to the world than all the other metals combined.

ED. ARCHITECT.—I want to know what a pound of fine gold is worth. Also, if you have the statistics at hand to give, so I can compare the price of gold with other metals; if you will be kind enough to give them to me, I will give you the thanks of a
STRANGER, BUT A SUBSCRIBER.
Santa Rosa, June 29th, 1880.

ANS.—One pound (Troy) of fine gold in Standard coin..... $248.062
" " good iron..... .04
" " bar steel..... .17
" " inch screws..... 1.00
" " steel wire..... $3 to 7.00
" " sewing needles..... 14.00
" " fish hooks.....$20 to 50.00
" " jewel screws for watches..... 3,500
" " hair springs for American watches. $16,000

The above statements are based on actual and careful valuations. Want of space precludes us from giving more.

MR. EDITOR.—Why can't I get a good knife. Bought several lately, but the edge keeps wearing off as fast as I can put it on. Why is it?
COUNTRYMAN, Petaluma.

ANS.—Mr. Countryman *can* get a good knife if he will only pay what a good knife is really worth. Cheap knives are made of soft iron covered with a superficial coating of steel. When we use such knives, we soon wear through this crust, and find metal beneath which will take no edge. This is termed *case*-hardening.

MR. ARCHITECT AND BUILDER.—How are pins stuck in paper so nice and even. I don't see how they do it, do you? Now please answer.
LITTLE SISSY, Oakland.

ANS.—The pins are stuck in papers, as we see them, by machinery, which picks them out of a miscellaneous pile, counts them, and inserts them in the paper ready for the market. The first part of the process is performed by a sort of coarse comb, which is thrust into the heap and gathers up a pin in each of the spaces between the teeth.

ED. ARCHITECTURAL REVIEW.—I see in your last number, that a *good mechanic* is supposed to put on 3,000 shingles in a day's work, and to have them *well put on*. I have taken an eastern paper for a long time; and I will take exceptions to G. H. S., and say that a man that puts on 2,500 a day, and every shingle well nailed, is doing as much as any *competent mechanic* is expected to do. Will you be kind enough to give me *your* opinion on the subject?
L. N. J., S. F.

ANS.—We gave our answer to this question in our last issue. We do not think that the average of *mechanics* will put on over 2,500; as their *pride* will not allow them to "slap" them on for the sake of showing a *big day's work*.

ED. CAL. ARCHITECT.—Knowing you of old, and knowing you to be a practical mechanic, we have sent you a question to answer. You know we old "*carps*" will have arguments during lunch hours. We disputed about the best kind of oil to use on our carpenters' oil-stone. Seven of us, and no two of us used the same material. Will you be kind enough to give us an answer?
SEVEN OLD CHUMS, S. F.

ANS.—Be sure and buy a *good stone*, and then use *glycerine*, taking care (as always ought to be done, no matter what you use) to wipe the stone clean after using.

ED. CAL. ARCHITECT.—My mother, the other day, told me her ring was 18 carats fine. What did she mean by carat? QUESTIONER, San Pablo.

ANS.—The name is derived from the name of a bean, which, when dried, was formerly used in weighing by the diamond merchants of India. It is equal to four grains, Troy.

We have been asked several times by mechanics, during the past month, "if there is any other way to find the hypothenuse of a right-angle triangle, sides being equal, besides the old way of the square root of the sum of the squares of the two sides."

We would answer, that there are several different ways to solve this problem. But the most simple as well as correct, is the following, which can be applied in obtaining the length of any brace: Multiply the length of one of the sides by the decimal 1.4142. The answer will give you the length of your brace. This rule will work up to 1,000 feet, at which figure you will only find your brace one-eighth of an inch short. Remember, this rule will only apply to a right-angle triangle, with equal sides.

ED. ARCHITECT.—A few months ago, I had a well eighty-five feet deep dug for me. Being busy at the time, I could not remove the surplus dirt. I find, already, the dirt last taken out, is covered with plants and grass, different from any I have ever seen, and it has grown remarkably fast. Now, there has been no grain of any kind any where near the well, for over ten years. Can you, or any of your scientific readers, tell me why grass and plants should commence to grow on soil taken eighty-five feet below the ground. SUBSCRIBING FARMER.
Los Angeles Co.

ANS.—The popular impression seems to be that such plants and grass must have sprung from seeds that have been buried in the earth for indefinite periods. Will some of our farmer subscribers, give us their views on this question.

Building to Rent.

An excellently well-arranged building, No. 1,723 Market street, opposite Gough street, containing parlor, bath-room, and chambers—21 in all, beside a large store which can be used as a dining-room, kitchen, a splendid brick cellar, etc., will be rented at moderate rates to a good, permanent tenant. Enquire at the office of this journal.

Pardon Us.

We hope that none of our patrons will feel annoyed at our oft-repeated importunities in reference to subscriptions to this journal. All must know that greater enterprise and perfectness can only be assured or brought about by a sufficient and sustaining number of subscribers. And we press the argument, that it is to the interest of every present patron to secure us as many additional subscriptions as may be possible, for as every pledge so far made has been kept and performed, just as certainly will the promise be fulfilled, that, with the increase of subscriptions, large improvements will follow. We have been credited with "great energy," and respectfully reply that it has required all the force and power of mind and will to surmount the many obstacles that lay in our way, at and since the commencement of our journalistic work. But we have so far straightened out crooked things, and smoothed rough places, that the future looks cheerful and encouraging, requiring only the earnest effort of friends and patrons to make triumphant success a certainty.

Market Report.

But few changes have been made in the price of building materials since our last issue. The price of nails seem to be steadily on the decline from the almost "fancy price" of a few months ago. Quotations will show a decline of about 75 cents per keg. Doors, sashes, blinds, etc., remain about the same, with a tendency in favor of the buyer. There has been quite a demand for painting materials, but prices have not changed.

OREGON PINE.

Common Rough, up to 40 feet, per M feet		$18 00
"	40 to 50 " "	19 00
"	50 to 60 " "	20 00
"	60 to 70 " "	21 00
"	60 to 80 " "	22 00
Refuse Rough		14 00
Common Rough, sized with planer $2 additional on above rates, per M feet.		
No. 1 Flooring, 6 inches and over, and Stepping	per M feet	30 00
No. 1 Flooring, 4 inches and under, and 1½ x 6 Flooring	per M feet	30 50
Rough Clear for flooring, $1 less than above rates, per M feet.		
Second quality Flooring and Stepping, per M feet		21 00
Ship Plank, rough	per M feet	25 00
" planed 1 side	"	28 00
" planed 2 sides	"	30 00
Deck Plank, rough	"	28 00
" dressed	"	32 50
Laths	per M	3 50

REDWOOD.

Rough Merchantable	per M feet	$20 00
" Refuse	"	16 00
Surface, No. 1	"	30 00
Surface, 1 x 8	"	28 00
" 1 x 6	"	28 00
" No. 2	"	22 50
Rustic, No. 1 1 x 8	"	28 00
" No. 2	"	25 00
" 1 x 10	"	30 00
" short, 8 to 10 feet	"	25 00
" under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
" " No. 2	"	20 00
" Beaded, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
Half-inch Surface	"	27 50
Pickets, fancy	"	20 00
" rough, pointed	"	16 00
Pickets, rough, square	per M feet	$14 00
Siding, ½-inch	"	20 00
Port Oxford White Cedar	per M feet	$30 00 to 45 00
Sugar Pine	"	30 00 to 50 00
R. W. sawed shingles	per M	2 00
Battens, ½-inch		75

HARDWARE AND NAILS.—We note the following reduction:

10 to 60 pennies, are quoted at					$4 00
8	"	"	"	"	4 25
6	"	"	"	"	4 50
5 and 4	"	"	"	"	4 75
4 and 5 pennies, brad heads at					5 25
6	"	"	"	"	5 50
8	"	"	"	"	5 25
10 and upward	"	"	"	"	5 00
3 penny fines	"	"	"	"	7 50

LUMBER.

Receipts since our last—4,975,950 feet lumber, 4,844,250 shingles, 101,100 laths, 14,000 railroad ties, 8,000 posts, 190 cords wood, 108 telegraph poles, 230 bdls. hoops. 17½ cords bolts.

Total receipts since January 1st:

Lumber, ft	91,175,447
Shingles, No	32,391,532
Laths, No	6,278,300
Wood, cds	13,636
Piles, ft	26,000
" No	2,968
Cedar, logs	1,758
" ft	72,980
Rosewood, logs	32
Shakes	643,500
Pickets, No	20,000
Hoops, bdls	7,133
Staves	12,299
" bdls	1,235
" crds	23
Railroad Ties	117,789
Posts	300,634
Sugar Pine, ft	945,000
Barrel St'k, pkgs	17,571½
Spars	59
Wool Slats	74,000
Stave-bolts	78,000
" cds	173½
Telegraph Poles	108

Receipts have been very light during the first half of the year. Several cargoes are engaged for export, while local demand is improving.

Building Intelligence.

Operations in building improvements have been more active within the past sixty days, than during any similar period within the past four years. The indications continue favorable, and a lively fall business may be confidently anticipated. Some are building fine private residences, others are improving their lots with "houses to rent," and many of the more wealthy citizens are making expensive improvements in business structures. All this indicates a breaking up of the dull monotony of inactivity which has so long prevailed in this city, in connection with real estate and building improvements.

Errors in stated costs of buildings are sometimes imposed upon us, for which we are not responsible. When statements are made to us by architects, owners or contractors, we cannot do otherwise than accept them as correct, and if misinformation is extended, we have no means of correction, unless we interpose our own judgment as to value and cost This would be a delicate liberty to practice, and one which would in all probability lead to complaint and dissatisfaction. We are therefore compelled by force of circumstances to give the figures received, and leave the onus of incorrect statements upon those making them. For this issue we received separate statements from the architect and builder in a certain case, which differed $2,000—the higher of the two being less than $5,000. We cannot comprehend the necessity or feasibility of such discrepencies, and most earnestly hope that they will not often occur. Plain facts will go farther, and serve a better purpose, than mistatements, and we shall use our influence to bring about such regular practice in this regard, as will render all reports appearing in this journal, entirely reliable.

Outside of San Francisco, there is a large amount of building improvements in progress. Stockton, Modesto, Portland and other places, are reported to us in general terms as being "alive with work." We shall be greatly obliged if architects and builders generally throughout the State and coast, would furnish us regularly, monthly statements of the condition of the building business in their localities.

SAN FRANCISCO.

Addition to the National Brewery, on the corner of Webster and Fulton sts. Owners, Gluck & Hansen; architect, W. Winterhalter; contractor for brick-work, — Wagener; carpenter, W. Hurne.

Dwelling on north side of Geary, near Scott. Owner, D. Burgin; architect, W. Winterhalter; contractors, Walker and Grant. Cost, $3,000.

Additions and improvements to Capt. Chas. Nelson's house, on 30 Laurel place. Architects, Huerne & Henrickson; contractors, Hurlburt & Hodgkins. Cost, $2,000.

Vault at Odd Fellows Cemetery, for F. Chevallier. Architects, Huerne & Henrickson; contractor, Jas. Henderson. Cost, $925.

Two-story and basement, on Bush st., between Leavenworth and Hyde. Owner, N. C. Luhrs; architect, —— Geilfuss; contractor, F. Klatt. Cost, $16,000.

Two-story and basement, on Polk st., near Jackson. Owner, M. Delwig; architect, —— Geilfuss; contractor, —— Bode. Cost, $2,500.

Building for E. H. Mills, Jr., on Buchanan, near Sacramento. Contractor, J. Robertson.

Dwelling on west side Leavenworth, between Eddy and Turk. Owner, R. Dinsmore; contractors, Terrill & Slaven. Cost, $8,000.

Frame building, on Ivy avenue, near Buchanan. Owner, A. Strasser; contractor, Jos. Dutton. Cost. $2,000.

Two-story frame building on Treat Avenue, between Twenty-fourth and Twenty-fifth. Owner, R. Curtiss; architect, T. J. Welch.

Two-story frame building on corner Twenty-fourth and Bartlett. Owner, Martin Bulger; architect, T. J. Welch. Days' work.

Dwelling on Page, between Octavia and Laguna. Owner, —— Rourke; contractor, Chas. Quinn; painting, B. Bradley; architect, T. J. Welch. Cost, $5,000.

Dwelling on corner of Ellis and Laguna. Owner, Jas. Badger; architect, T. J. Welch; contractor, J. McCann. Cost, $2,500.

Three-story and Mansard roof, with brick cellar, on corner of Leavenworth and Sutter. Owner, Mr. Wm. Hoag; architects, Kenitzer & Raun; contractor, John Martin. Cost, 14,000.

Two-story and basement on Sutter, near Hyde. Owner, D. M. Richards; architect, P. R. Schmidt; contractor, John Bruce. Cost, $6,300.

One new house and repairs to the one adjoining, on Hyde street, between Geary and O'Farrell; two-story and basement. Owner, L. Solomon; architects, Kenitzer & Raun; contractor, Martin Clausen. Cost, $4,500.

Seven two-story and basement houses on Geary, near Scott. Owner, H. Myers; architect, A. Laver; contractor, D. Gorden. Cost, $25,000. Owner furnishes mantels and ranges.

Two-story and basement on Greenwich, near Powell. Owner and builder, C. Holmn. Cost, $3,500.

Two-story frame building cor. Larkin and Green, Owner, —— Finamen; architect, Moore, contractor, Brotherton. Cost, $3,500.

House on Filbert, near Taylor st.; two stories. Owner, John Malone; architect, Townsend, contractor, T. G. Somerset. Cost, $1,100.

Two-story and attic, with brick cellar, on Pine, between Gough and Franklin sts., Owner, George Moffatt; architect, P. R. Schmidt; contractor, John Furness. Cost, $14,000.

Two-story and basement on Sacramento, near Larkin. Owner, Klumpf; architect, P. R. Schmidt; contractors, Norton & Walker. Cost, $4,500.

Bridge across New Montgomery, to connect the Grand with the Palace Hotel. It is seventy feet in length by 8 feet in width, and elevated 30 feet from the street. Owner, Senator Sharon; architect, J. P. Gaynor. Probable cost, about $5,000.

Three-story and basement brick building, near the junction of Market and California. Owner, Mr. Laveaga; architects, Kenitzer & Raun. Cost,

Four-story and basement brick building on southeast corner Market and Beale. Owners, Boyd & Davis; architect, D. Farquharson. Cost, when finished, will be in the neighborhood of $130,000.

An additional story is being added on to the Oriental Block, at the junction of Market and Bush. Architect, J. P. Gaynor. Cost, about $16,000.

Alterations and additions to building on Laurel Place, between First and Second. Owner, Capt. Nelson; architects, Huerne & Hendrickson; contractors, Hodgkins & Hurlburt. Cost, about $2,500.

Alterations of Cosmopolitan Hotel. Owner, Chas. Crocker; superintendent of works, —— Hill; architect, J. P. Gaynor. Probable cost, $50,000.

Two-story frame, Market st., between Spear and Main sts. Owner, E. K. Kitridge; day's work. Cost, $3,000.

Fire repairs, corner of Sansome and Broadway. Owners, C. James King of Wm; contractor, James Kelly.

OAKLAND AND ALAMEDA.

St. Paul's Episcopal Church is being moved from cor. Central Avenue to Fourteenth and Harrison. Architect, William Kirk; contractor, W. P. Clark. Contract price, without painting, $3,400. Total, $4,000.

Additions to house on Ninth and Jackson. Owner, C. M. Bonnemort; carpenters, Manus & Toolig; brick-work, Bower. Cost, $4,000.

Building on north-west cor. Eleventh and Broadway is about to be torn down, to be replaced by a substantial 2-story brick building.

Building north-east cor. Ninth and Broadway is being torn down, to make room for a substantial brick structure; number of stories not fully decided upon. Owner, Delger; architects, Kenitzer & Raun; day's work.

Dwelling at Willow Station, Alameda. Mr. Alex. Joonson, owner. Cost, $000.

PIEDMONT.

Two-story dwelling for Dr. Liliencrantz. Architect, Clinton Day. Contractors, Haskell & Smiley. Cost between $5,500 and $6,000.

NEWARK.

Frame building for a Catholic Church. Owner, Rev. Father Kaiser; architects, Huerne & Henrickson; contractors, Terrill & Slaven. Cost, $2,800.

RIVERSIDE (LOS ANGELOS).

A cottage is being erected for Mr. Coffin. Architect, T. J. Welch. Cost, $2,500.

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The California Architect and Building Review.

VOLUME I. NUMBER 8. } SAN FRANCISCO, AUGUST, 1880. { $1.50 per Annum, in Advance. Single Copies, 15 Cents.

The California Architect

—AND—

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

Sent to any part of the U. S., postage paid, at $1.50 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

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Sources of National Greatness.

There is nothing in the whole line of great things—intellectual, political, physical, or material—that adds more largely to a nation's greatness and glory, than its workshops and their products. The world-wide renown of hundreds of cities, towns, and countries is no more nor less than the echoes from their mechanical laboratories, where skillful hands manipulate into practical shapes and forms the countless brain creations of earnest devotees at the shrine of invention; in whose thoughts, day and night, revolve problems and principles of mechanical science, and who tire not at the ceaseless mind-toil involved in producing and perfecting the one or many special devices, to reach a full and perfect understanding of which, may have encroached upon the hours of rest and slumber, and for the time being, rendered life in many, a condition of mental inventive slavery.

The intellectual brilliancy of thousands of learned men—statesmen, orators, philosophers, and men of science—have by their productions and accomplishments, enhanced the reputation of the nation of their birth; but in the common, every-day, practical life of mankind, their importance diminishes when compared with the labor interests and products of the world. And many of those who have reached the highest eminences in intellectual and scientific life, have passed through workshops and periods of physical labor and hard toil; and, certainly, there is no truly great and learned man who would attempt to substitute any fancied greater interest for the workshop interests of the world.

Building Improvements.

The report appearing in this issue under the head of "Building Intelligence," illustrates the fact that a larger number of contracts for the erection of buildings in this city were concluded during the month ending July 31st, than for any like period during the past three years and more. The July report of engagements for June was encouraging, as showing a largely increased disposition on the part of owners to improve their real estate, but the report for July exceeds the former month considerably. The fact that there are no very "heavy jobs" included in the list for July, is not a material circumstance. It is to be hoped that there will not be a "great rush" of large structures, nor an excessive number of lesser buildings. "Rushing things" has worked numerous evils in California, by attracting hordes of irresponsible, vagrant parties to migrate to San Francisco and demoralize the building business by undertaking contracts far below right values, often not more than the actual cost of materials, calculating to realize and pocket more than a right proportion of the contract money, by means of "botching" and underdoing the work, creating onerous difficulties for architects, and swindling owners both in materials and workmanship, and ending their careers by gathering in all available funds and leaving for new fields of operation, followed by the prayers (!) of sometimes numerous creditors.

The present condition of the business is such that home contractors are generally engaged, with no inducements to entice hither "broken-down" contractors from other places. The price of labor is steady, and in some departments higher than has heretofore ruled.

The improvements are well distributed throughout the city, no one part being specially prominent, except that it may be noted that there is more than usual activity in the "Mission" section. Numerous "comfortable" and some moderately elegant private residences are under way, and many others mentioned as "contemplated."

"Fire and Sword."

"By the law of Scotland, although a decree may be given in a civil action against an absent defender, no criminal sentence can be pronounced, unless the accused is present. But to resist criminal citation is to rebel against the law of the land, and in former times might be treated as treason. In this view, letters of *fire and sword* were occasionally issued by the privy council. These letters were directed to the sheriff of the county, authorizing him to call in the assistance of the country, and to proceed to the extremities which the terrible words, "fire and sword," indicate, should such proceedings be necessary for apprehending the accused party. Lord Stair describes this process as the "last legal execution, warranting all manner of force of arms that is competent in war." The same course might be resorted to where the decree of a court was resisted; and the object with which the letters of "fire and sword" were more frequently issued than any other, was to enable the sheriff to dislodge refractory tenants who retained possession contrary to the order of the judge, or the diligence of the law. By the modern practice, the judge is empowered to call in the aid of the military to apprehend an accused party, or to enforce a decree where the ordinary means prove unavailing."

American Iron and Iron Ore.

An English journal says: "The failure of one remote mill at the present juncture means, perhaps, very little; but throughout the United States many works are reported unemployed, not because there is no demand, but because the production of raw iron in the United States is really inadequate, if America has any pretensions at all to the ability to supply her own need in respect to raw material."

Statements calculated to underrate the importance and resources of this country, appear to gratify the feelings of English editors, and it is somewhat surprising that persons who are as well informed as editors should be, so often fall into gross errors, when, by moderate effort facts might be reached, which would entirely change their conclusions and statements. If we rightly understand the case, there are vast fields of iron ore in this country, already known and worked, yielding an abundance of the crude material for all the purposes of the country for centuries to come; while in thousands of localities, other and perhaps richer deposits will be discovered and opened up, sufficient to supply the demands of the entire world.

In this connection, California is destined to assume a prominent position. Our personal observations and experiences during a residence of thirty years in the "Golden State," fully convinces us that it is simply a matter of time, when the blast furnaces of California will yield abundantly the product of her iron mines, as her other mines have yielded gold and silver. Difficulties will have to be overcome, but some who now live will see this Western market supplied with good iron, produced from ore obtained within our own borders. Oregon is already producing and sending to San Francisco an excellent article of pig iron, and in time may supply the Western Coast demand for that material. But that there are "mountains of iron ore" on the Pacific slope, there can be no doubt; and personal enterprise and interests will find ways and means to create an additional source of wealth for the Pacific States, from their at present dormant iron ore deposits.

The Power of Human Thought.

Who can define, or prescribe the limits beyond which it has not, or cannot pass? What is there upon earth's surface, or within its secret chambers, that has not been grasped by human thought? What upon the bosom of the mighty waters, or within their deepest depths, that has escaped the scrutiny of human investigation? The minutest of animate and inanimate life and existences, as well as the greatest and grandest, have been contemplated, and the uses, purpose, and design of each revealed. The properties of every blade of grass that covers alike the hills and valleys of earth, and every flower that blooms beneath the warm suns, and gentle zephyrs of successive springs and summers, whether as fragrant sources of sweet perfume, or poisonous to the touch of human hands; and those containing healing oils, and medicinal acids, have all been defined, and rendered subservient to the purposes of mankind. Human thought has soared away from terrestial confines, to revel in the mysteries of the vast celestial realms, in which revolve the great orbs of light, and countless planets and worlds, among which our earth, with all its wonderful matter, forms, order, and mysteries, bears but feeble comparison. These have been measured, and their motion and action defined. The heavens have been opened by the force of human conception and mind powers, and their mysteries unfolded; and, passing from created and material conditions, the thoughts of men, by "holy inspiration," or otherwise, have pierced through the curtain which separates life on earth, from the actualities which will never be reached nor understood by man, while life's warm currents continue to flow; and in that "Spirit Land," the realm where "angelic spirits" dwell, have in imagination at least, built cities of pure gold, with "walls great and high," having "twelve foundations" of the most precious jewels stones, with "twelve gates" in the walls—erected thrones of crystal and pure gold, and temples of stupendous grandeur, where God, the Creator of all things, dwells, welcoming to his presence the spirits of the righteous, as each in due time, shall have "worked out his salvation" on earth, and "made his calling and election sure."

Everywhere, and into all things of whatever nature, the thoughts of man have entered, subjugating the elements, powers and forces of earth, space, and time, to human purposes. There is force in the following extract:

> "We do not make our thoughts; they grow in us,
> Like grains in wood; the growth is of the skies—
> Which are of Nature—Nature is of God."

To which the poetess beautifully adds:

> "It sweeps across the soul,
> And you cannot stay its course."
>
> "It comes in the morning hour
> With the song of the early bird."
>
> "It comes in the sultry noon,
> When the drowsy powers are still."
>
> "It comes in twilight's eve,
> With visions of gentle things."
>
> "It comes in the midnight deep."
>
> "It comes in the soft spring-time."
>
> "It comes in the summer tide,
> When the heart is flush with joy."
> "It comes in the autumn day,
>
> And in the winter, too, alas."
>
> "But mighty power of thought!
> Far, far beyond the tomb,
> 'Neath thy magic sway our feet are brought
> To a land of beauty where death is not,
> Where thy flowers forever bloom."

Now and Then.

The standard of mechanical operations has doubtless changed greatly in all parts of the United States within the past forty years. And as far as personal recollections serve us, the changes in many directions have not been for the better; "the honest mechanics" having, as a rule, passed into "shrewd, calculating, money-making operators." The time was when a sense of integrity actuated men in the performance of contracts, and square dealing was a certainty among the devotees of labor. But conditions and rules have changed, and men generally hold strictness of performance as a secondary consideration, when an escape from their involvements are within the range of *paying* possibilities. The more common rule of the period is to make all that can be squeezed out of every operation, and to "stand up to the rack" only when *compelled* thereto. The rule of "doing unto others as you would they should do unto you" is one of the old, fossilized ideas of past generations. Where this rule used to weigh 85 per cent. in business transactions, its value will not now average, perhaps, 10 per cent. It is scarcely ever called into exercise, except in words; practically it is a dead letter. It furnishes a text for beautiful discourse, and a theme for poets and moralizers, and answers well as business sophistry and argument, but in actual practice its force and beauty have faded.

Self-interests and personal gains and profits, crowd down and out all "compromising sentimentalism" and old-time virtues. We do not propose to assert as a fact that there are no conscientious, honest men, nor any integrity in mankind; but we do assert that the more common and nearly universal rule in business affairs, is to make all that is possible within the law, out of every transaction, and but few men live who will not twist and compress conscience, and even truth itself, to a considerable extent, if there is gold and silver at the end of the twisting and compression.

A Common Fact.

The boy or girl, who as the result of education drilled into them by years of tuition, sometimes aided by special inherent, intellectual powers, may happen to write a few lines or pages, upon subjects new or old, possessing nothing materially valuable to mankind, but simply illustrating their special aptness of mind to produce pleasing thoughts, often receive great praise and commendation; while men who spend their whole lives in ceaseless mechanical toil, thinking, demonstrating and perfecting beautiful and enduring books and tablets in wood and stone, and metals of various kinds, creating and producing things both useful and beautiful, pass from their cradles to their graves, seldom receiving any special recognition, and not unfrequently, only a limited share of the common comforts of life itself.

The Prevention of Virulent Diseases.

One of the most promising discoveries since Jenner's day, in connection with the nature and treatment of virulent disease, has recently been made by the eminent investigator of microscopic life, M. Pasteur. A full report of the investigations leading up to the discovery will be found in the *Scientific American* supplement. In studying the microscopic organism which is the cause of that malignant disease of poultry known as chicken cholera, M. Pasteur finds this disease to be a connecting link between those virulent diseases of man and animals known to be caused by living virus and other diseases in the virus of which life has never been demonstrated. He finds also that under suitable treatment the nature of the virus of chicken cholera may be so modified that it will no longer produce virulent disease, but only a mild disorder, which, however, protects the animal organization against the fatal disease just as cow-pox protects humanity against small-pox.

In the study of the microscopic germs of chicken cholera, M. Pasteur employs a broth made of chicken flesh neutralized with potassa and sterilized by high temperature. In this liquid the organism multiplies with astonishing rapidity, just as it does in the bodies of poultry. If a few drops of a cultivation of the organism be fed to chickens, the disease is quickly propagated, and the infected chickens transmit the disease to others. Repeated cultivation, by sowing in fresh broth a minute quantity of infected broth, does not weaken the virulence of the germ. But by a modified cultivation, the nature of which is not disclosed, the virulence of the germ is diminished, so that when chickens are inoculated with it they are sickened but not killed. And it is found that chickens which have had the mild disease are practically incapable of taking the malignant disease. The analogy of the behavior of the mild, artificial chicken cholera, to that of cow-pox in preventing small-pox, is quite complete. M. Pasteur finds further, that the attenuated virus most probably keeps its character of mildness after passing through the animal organization.

The possible outcome of this discovery covers a far wider field of sanitation than at first sight appears. It gives a clew to the nature of many of the worst scourges of humanity, and holds out the promise that when the viruses of such diseases as measles, scarlet fever, typhus, plague, yellow fever, and others, have been similarly investigated, it may be possible to develop mild disorders, by means of which the more virulent forms may be greatly mitigated in severity, if not entirely stamped out.

Glycerine in Gastric Troubles.

Dr. Sydney Ringer calls the attention of the profession, in the *Lancet*, to the value of glycerine as a remedy in flatulence, acidity of the stomach, and pyrosis. He states that sometimes he finds all of these gastric troubles combined, but glycerine in nearly all cases relieves them. In some cases, too, it removes pain and vomiting, probably like charcoal, by preventing the formation of acrid acids, which irritate delicate and irritable stomachs. Glycerine does not prevent the digestive action of pepsin and hydrochloric acid, and hence, while it prevents the formation of wind and acidity, probably by checking fermentation, it in no way hinders digestion. He administers a drachm or two drachms either before, with, or immediately after food. It may be given in water, coffee, tea, or lemon and soda water. In tea and coffee it may replace sugar, a substance which greatly favors flatulence, as, indeed, does tea in many cases. In some cases a cure does not occur till the lapse of ten days or a fortnight.—*Scientific American.*

Expansion of Glass.

The expansion of glass by heat may be demonstrated as follows: A glass tube of narrow bore, and about eighteen inches long, is bent round in the shape of a horse-shoe, so that the free ends are within a millimeter of one another. Between these ends a coin may be held, being nipped between the ends of the rod and held there by the grasp due to the elasticity of the glass. If now the *outer* portion of the curved part be warmed, the ends open slightly and the coin drops out. This experiment is due to the ingenuity of Mr. Ridout.—*Scientific Amer.*

Those Copyrighted "Cheap Dwellings."

The enterprising daily journal which, during the past few months, has occasionally furnished its readers with "copyrighted" plans for buildings, issued number four of its series on August 7th, and denominated it "a handsome country cottage." Well, there is no accounting for taste, and we shall, of course, not contest the question of beauty, except to say that it is well that there is, "possibly," some one who can admire an ugly thing.

There are not only "*some people in the world, 'possibly,' who believe that the published estimates are too low*," but a great many who *know* the fact, and cannot be deceived by any system of bolstering. We have yet to find the first man, architect or builder, who has expressed the least appreciation of the designs and plans so far copyrighted, or who does not condemn the estimates of cost as fanciful and ruinously low; damaging alike to those who are compelled to labor for their daily bread, and to the legitimate rules of trade. This compression and breaking down of right and proper compensation to the working classes is by no means healthful in a business point of view, in either a personal or general sense. Thousands of hard-working, deserving men and their families are compelled to suffer for the reasonable, rightful necessities and comforts of life, because fairly remunerative compensation can not be obtained, through similar causes to those which must and do arise from the attempts of parties to construct buildings at prices far below all fair and correct values; and we think that it ill becomes a "leading daily journal" to give countenance to that which must result unprofitably to those who, through force of circumstances *or* lack of proper knowledge, are led into such engagements.

In the July number of this journal, we reviewed "Number three of series," exposing gross errors and mistakes, which clearly defined the degree of competency, intelligence, and qualification in the party making them. And *if* made, as *claimed* by the journal in question, by thoroughly intelligent and competent parties, the condition of mind prominent at the time must have been special and peculiar, as obliviousness to correct figures, absence of proper terms, and disregard for consistent requirements, were manifest throughout.

The copyrighting journal evades the direct issue, and unmistakably conclusive facts presented, and seeks to sustain the errors into which it has fallen, by cloaking them over with personal reference to the qualifications and business reputation of the parties concerned. Our criticisms were based upon the *facts* of the case, and not upon the standing or business repute of the parties figuring in connection with the matter as architects; nor care we an iota who the parties were or are. Erroneous statements and incorrect figures emanating from *intelligent* sources, are far less excusable than when made by men endowed with neither good judgment nor a right conception of facts and possibilities. For in the one case ignorance would qualify, if not excuse the act, while similar errors on the part of *well-informed* persons forces the conclusion that motives and designs actuated. And if the pre-eminent qualifications exist, as claimed by the journal in question, all grounds of excuse are removed for the unpardonable stupidities appearing in connection with "number three of series."

There is an argument in the statement, that the architects in question "*review each other's work*," and then "*engage experienced carpenters and builders to go over the same ground in the same way.*" This may be an excellent method of determining the value of inexpensive buildings, but is a practice not common with intelligent architects generally. We shall not apply the argument.

The recital about the "four-room cottage, which was to be built on what was known as the "Treat Tract," proves nothing, and will not modify or change the opinions of intelligent contractors or architects, as to correct values, based upon the plans and specifications as published. It is just as easy for an architect to "fix up" a contested matter of this kind, as it is for an editor to "dodge an issue," or qualify statements which involve retraction, or—"brazen it out."

Smart men sometimes commit errors, but they do not often repeat them with deliberation. But few, if any, question the intelligence, learning and culture of the fifteen gentlemen who framed the new Charter, yet the journal involved in this controversy, in very plain terms, disapproves the document framed by these gentlemen; no doubt for good, sufficient, and proper reasons. Nor does the fact that it emanates from intelligent parties in any manner lessen that disapproval. But errors and mistakes of the most indisputable character, involving the interests of the working classes, and in many ways evil and damaging in effect, are not only countenanced, but defended, and strongly so, upon the ground that the source of the errors is intelligent and competent.

The excellences (!) of arrangement of plan number four are strongly urged, and it might *possibly* occur that a party with very peculiar notions of convenience might be found, who would accept the plan as published. We doubt the necessity of copyrighting the accesses to living-room and kitchen. It is not likely that it will ever be adopted by anyone with sufficient understanding to comprehend the details of a plan of building, as the living-room can only be entered through the parlor or through the "pass-closet" by opening two doors, there being no direct entrance from the hall or otherwise. The only mode of access to the kitchen is by means of the rear *outside* door or the other *convenience* (!) of passing through the same "pass-closet" at the end of the main hall, by opening two doors. The closet convenience to the chamber would suit but few persons, as the passing out of bed-rooms, and crossing halls or entries to reach a closet, is neither convenient nor healthful. The position of the "pass-closet"—across the rear end of main hall, in full view from the front entrance—is a feature, as it will afford the neat housewife or servant a fine opportunity to exercise and display her skill and taste in keeping the shelves and dishes in such nice order of arrangement, that, with other things ornamental added, the pass-closet would present a fine appearance when open in full view of the front door. True, some people object to too great exposure of closets of any kind, and those used in connection with "living" and dining-rooms in particular, as they are the receptacle of things in general used at the dinner-table. But this delicacy would be overcome as soon as the occupants of a house so arranged became acoustomed to this new order of things. And there *might*, "possibly," be some one found who would adopt the arrangement shown in number four.

We not only "possibly believe," but, in common with nineteen-twentieths of our fellow-architects, and every competent and qualified contractor, *know* that the figures of the estimated sum of cost stated for number four, as in the other cases, is wholly insufficient for the proper erection of such a building, except by using refuse lumber, inferior materials of all kinds, and throwing the work together in the most unmechanical manner.

It is unnecessary to comment upon the specifications more than to say that, as they have been "revised" by the architects in interest, and been approved by "experienced carpenters and builders," engaged to "go over the same ground in the same way," they *ought to be* all right.

We simply suggest that more money might be made out of the operation by our neighbors, if they would omit the *expenses* of copyrighting. There is not the least danger that any *competent* architect will copy anything so far produced in the series.

By the by, there is one convenience, if not beauty, in the English language, and that is its supply of words or characters which may be used to reach over spaces where suitable expressions are not conveniently at hand; such as *about*, etc., etc. In this case the convenient term is "fixed."

"In 1878, we sent to the British Islands 45,000 panel doors of various kinds, and 12,000 pairs of sashes. These found their way mainly to England's colonies, a fact worth noting by our manufacturers. Last year California alone shipped as many as 28,000 doors in one month to New Zealand and Australia."

"Machine-made doors of American manufacture, whether pine or hardwood, are recognized as superior to the more expensive hand-work of the foreign mechanics, and their general adoption by builders in foreign parts is, no doubt, a severe blow to the carpenters of those lands. It will take some time, however, before the severely-conservative people of Europe will as universally accept machine-made work as Americans do. A love of old customs and old things, in the old world, will have a retarding influence against the wholesale use of machine-made work."

Earthquakes and Volcanic Eruptions.

The month of July has been characterized by seismic disturbances of more or less severity over many and widely separated regions. In the fore part of the month, an earthquake at the island of St. George, one of the Azores, resulted in the formation of a new island, 600 yards distant and about 18,000 square yards in extent.

About the same time, Sunday, July 4th, an unusually severe and widespread earthquake was experienced in Switzerland, Several meters of the summit of Schnebelberg, near Quarten, fell, overwhelming a large forest. Two persons were killed by falling structures.

On the 13th of July, seismic disturbances began in the Philippine Islands, and continued for several days. On the 21st an earthquake, unequaled in severity since 1824, destroyed a large part of the city of Manila and killed many of the inhabitants. All the volcanoes of the islands were in full activity.

On the 20th, New Hampshire experienced an earthquake shock of considerable severity, but noticeable chiefly as a symptom of the prevailing uneasiness of Mother Earth. The same may be said of the slight volcanic outbreak at Vesuvius.

Dispatches from Panama, July 17th, speak of the exceeding activity of the long silent volcano Fuego, near the city of Antigua. The heavens for miles around were filled with smoke and dust. The first outburst occurred on the night of June 20th. As seen from the deck of the Pacific mail steamer Wilmington, at a distance of nearly 50 miles, the spectacle was magnificent. From the highest peak of the Fuego great columns of flame darted up into the air to a height of from 400 to 500 feet. The surrounding country to the east and south was illuminated by the tremendous glare of the flames, while to the northward and westward the clouds of dust and smoke obscured the whole country. — *Scientific American.*

Wholly Unnecessary.

The antagonisms existing in connection with mechanical operations are by no means necessary or useful; serving no other purpose than stimulating strifes and discords, and separating and dividing sympathies which should be common and mutual. For it will be admitted by all intelligent minds, that those who labor and toil for money, and receive pay for the product of their hands and brain, and those who employ and recompense such labor, are but parts of the same operation; neither being able to accomplish the result desired or attained without the aid of the other. Although one man might, perchance, possess the wealth of the world, his millions of shining gold would neither secure him a palace nor the luxurious adornment of mechanical arts in their multiplied forms, if there were none to create and shape into beautiful designs, earth and mature production of materials. And if it were possible that there existed no one to use, occupy, and enjoy the things made and produced by skillful hands, the most splendid or useful devices and the grandest of structures would be but a waste of time and labor to produce. Consequently, the parties paying and receiving pay for labor have claims upon each other, and each, in his way, is master; with this simple difference—that, as the affairs of the world and society are constituted and regulated, those who hold the royal gold have the advantage.

From Chicago.

The many friends of Mr. Frank P. Burnham, formerly connected with this office, will be pleased to learn that he is well, and doing well as a member of the firm of Edbrook & Burnham, architects, Chicago. Frank is a genial, honest and good young man, and it is to be regretted that the business outlook last year in this city did not offer sufficient encouragement to justify his remaining in San Francisco. His talent as a draughtsman is of a high order, and his services should not have been lost to this city. The samples of his handiworkmanship, remaining in this office, bear testimony to his much more than ordinary abilities. He writes under date of July 19th: "City business has been light with us since my return to Chicago. Our principal engagements have been at Denver, Colorado, where we have had, and now have under way, a number of large jobs. I am completing the plans for an Opera House at Denver, 125x225 feet. Prospects for the fall business in Chicago are good."

"Blue Jay" Contractors and Owners.

While on an excursion of pleasure to the "Big Trees," near Santa Cruz, one of the ladies present, remarked in the hearing of the hostess of the hotel, "Those blue jays are beautiful birds." To which the madame replied, "Yes; but they are great thieves; they will steal any bright thing that they can carry off." She went on to state further, that on one occasion there was a picnicking party at the park; and after enjoying their lunch, they left the debris, including the dishes and implements used in eating, lying upon the table, while the party amused themselves in some sport, away from the festive board; when two blue jays alighted upon the table, one of which picked up a silver spoon, and the other a silver fork, and away they flew with them into the woods. The fork was afterward found and returned to the hotel. On another occasion, a laboring man was fixing his buck-saw, and for a moment laid his pipe, which was a bright one, on the stump of a tree near by, when, to his astonishment and annoyance, he saw a blue jay bearing away in his claws, his valued companion—the old pipe—which was never found again. On another occasion, said the hostess, "I was preparing some pastry, cakes, etc., near the kitchen window, and the weather being warm, and the window being open, in came a blue jay, and, picking up an egg, flew off with it; but the egg being smooth, and inconvenient for his birdship, he let it drop a short distance from the house." She was asked why they did not set traps or shoot them, to get rid of them. She replied, "that such a course would be too expensive and troublesome, as the jays were worthless as food. The way we drive them off, is to catch two of them, and tie one leg of each bird to a string about a foot long, and then let them fly away. The string soon becomes entangled in a branch or twig of one of the trees, and the birds are held, and being unable to free themselves, death soon follows their fruitless attempts to fly." And, said she, "So long as their carcasses hang together in the trees, the family of blue jays in the woods is very small."

Are we asked for the analogy? It is this. There is a class of contractors, who, by fine promises and fair pretenses, seek to make themselves appear as beautiful in moral rectitude as "the thieving jay bird" is in plumage, but who, in their business practices exemplify the nature of the jay—not being content with proper and legitimate advantages, but seeking others, which are both mean and dishonest. Striving in all ways, and by all available means, to evade plainly expressed and agreed conditions; practicing deception in numerous forms, and if need be to effect a purpose, resorting to a willful violation of the truth; and as is well known to the well informed, the asseveration—with upraised hand—"I swear to God," is often used to enforce the correctness of statements, in which in reality there is a strong decoction of falsehood, and often the brazen lie, unsupported by a single ray of truthfulness. Like the jay, they seek opportunities when no one is near to detect them, to pilfer and do wrong; to hide and cover up bad things, playing the part of the unprincipled deceiver, for the sake of securing greater than *fair and legitimate* profits, through wrongful acts.

While it is right and proper, and even a duty that every man owes himself, to endeavor to economize outlays, and to make all that is within the range of rightful possibilities, it is thoroughly condemnable and wrong in those who resort to unfair, false, and deceitful methods, for the purpose of securing increased and dishonest profits.

On the other hand, there are "blue jay" owners who want *first-class* everything, but are not willing to pay more than second-class price for anything, and it matters not how low the bids may be, their avarice often impels them to hunt around, and if possible, "pick up" some simpleton, whose enjoyment of either intellectual or mechanical qualifications are exceedingly limited. In this particular, the "blue-jay" owners often find themselves tied by a string of *results*, in which they become sufferers by their own acts, and many of them have found themselves suspended upon unpleasant and unprofitable perches of circumstances, from which they are often compelled to look upon their folly with many regrets.

Positive unfairness and virtual dishonesty may be practiced in various forms. It is no more just and fair for an owner to expect and seek to obtain labor or materials from a contractor without fair compensation, than it is for a contractor to omit, conceal, and by device and strategy, seek to avoid strict fulfillment of contract obligations. And if it is dishonest in the latter to do less, is it not equally a matter of questionable propriety, for an owner to insist upon receiving more than the full measure of the contract? In both cases there is a wrong, and it is this class of wrongs which have so largely tended to disturb and pollute the streams of business regularities. Still it often occurs that the "blue jays" on one or both sides, want the silver spoon or fork, the wood-sawyer's pipe, or the cook's egg, or all of them if possible. But in contrast with these are the many excellent, square-dealing, honest contractors, who never shirk an obligation undertaken by them, but like men give the full measure of what they have agreed to give; and those right-minded and consistent owners who are willing, while exacting fairness toward themselves, to be fair to those from whom they require fairness, and to pay *right* and *proper* prices, asking no man to render services, or furnish materials for them without proper remuneration.

Were it possible, we should like to see some rule of practice in house building on this coast, by which architectural and building operations would be forever freed from the "blue jay" kind on both sides. For when an architect is bound down and enforced by restricted appropriations to produce for a given sum a building of much greater value, it is a toilsome and vexatious affair, which in nine out of every ten cases results unsatisfactorily all around; as to do so, it becomes a necessity to allow the class referred to, to figure, with the risk of chances to get through the operation without disaster. And while many in their *profound ignorance* of the duties, responsibilities, and cares of an intelligent and faithful architect, imagine that this is an easy work, the true state of the case is, that in many instances four-fold the compensation received would not be a reasonable equivalent for the provocations and vexations endured.

How to Make Homes Beautiful.

To those who wish such homes, and would have them, we would, in this brief article, try to induce them to invest a *little* in the home culture. It does not matter whether our homes are fixed or not, for we should strive to make that home which is allotted us happy. Home, sweet home, is that domicile which is so arranged that its pleasant aspect opens the heart's affections by its memory of cheerful times spent in its circle of congenial souls. The parental hands arrange the interior embellishments according to the means at hand. Pictures are hung along the walls, the "*bric-a-brac*" are made to adorn the brackets in the angular corners, and all is neatly done without ostentation, showing only the means which willing hands give to enrich the surroundings.

Tasteful selection, to promote ultimate projects, whether of *home creation*, matters not, so long as it subserves to render a pleasing feature, in frame, or form of drawn rug, wherein we see the reflections of busy hands delving for home comforts. It is in these humble trifles we see so much to enhance the beauty of a room, or it may be the style and color of the wood-work, the tinting of the walls, and bordering them with flowered patterns in color and gold. Let not your heart be troubled about the riches of this life, for they take wings and soar away; but be sure you secure the comforts of a home; cluster around some spot in harmony with your spirit, and there build your nest. If there are no tree temples to attach to, cull together materials and create one; beautify it by the harmony you see in animate and inanimate nature. In doing this, you will employ skill in design, so that your temple may have beauty in form and color, and yet blend with vines or any foliage you may desire to have around the doorway approaches. If the means allow of it, architectural adornment of the inclosures in lattices in forms of arbors, or a *tete-a-tete* embrasure with canopy; where these cannot be had, plants can well fill their places, with a little training over some rude rustic work. For a tasteful distribution of roses, lilies, pinks, sweet williams, geraniums, gilliflowers, fuchsias, with many other sweet-scented plants, heliotropes or vines of honeysuckle, can make it beautiful. Where space is limited, potted plants can be so arranged on shelves and brackets, attached to fences and sides of houses, or adjoining buildings, or posts with pyramidal shelving rising one above the other. The time thus employed in the outdoor culture well repays you in floral tributes to the vases which adorn the house, tables, and mantels. A home may be beautiful, and yet not luxurious; it may have all the necessary accompaniments, and for want of arrangement or adaptation, fail of being elegant. To fill a house with fine furniture, it is many times an exhibit of the skill of the artisan, just as we would view a manufacturer's display at the Mechanics' Fair. My ideal of a beautiful home is in its make-up, so to speak—the taste displayed in the selection and disposition of its parts. For instance, a home may be furnished with very inexpensive articles, yet the taste with which they are disposed renders the tableau one of beauty to every visitor. There is a great want of culture in households in this line, for fear of expense, but where there is a will there is a way. How many homes I have seen where the surroundings were humble, yet a lovely beauty pervaded every apartment; everything bore the impress of living joy, like the rippling brooklet as it leaps in tiny cascades over its pebbly pathway. There is no home, however humble, but what can be improved by the display of tact and talent; where these are brought to bear, a visible change occurs, for tact sometimes is equal in all respects to talent in these domestic decorations. How happy one feels on entering a home made pleasant by willing hands! The heart feels a contentment that is not elsewhere to be found. It is our home, it is our rooms, are so well suited to our wants æsthetically, that we may well feel there is no place like *home*.

I. E. W. C.

If Fair, We Can't See It.

Our original article on "Laying and Nailing Floors," appearing in our February number, page 2, has "gone the rounds of the entire country." Many of the leading journals have, to our knowledge copied it, and doubtless others not received by us, have done so; some failing to give us the proper credit until their attention was called to the omission, and some persisting in the omission, after being so notified. By unintentional oversight, we, in one case, gave credit to a prominent New York journal—to which we may have occasion to refer more directly at some future time—for an article which was copied from its columns, and for which we were taken to task by the *Plumber and Sanitary Engineer*, saying that the article in question was pilfered from their columns, by the journal from which we copied. That same journal has copied two articles—one, a more than full column article, and another, nearly a column—of our original matter, without giving us proper credit. The more honorable journals are prompt to correct such errors, and as we strive to be particular in extending credit to journals whose matter we use, we certainly expect the same recognized rightful courtesy. Original matter, appearing in our columns, worth copying, is also worth the trouble of saying whose brain work is being used. This pilfering matter is worse than borrowing a man's tools without asking for their use, and returning them without saying thank you, and on a par with not returning them at all. In making up the matter for this issue, we almost committed the error of giving credit to a *London Journal* for one of our original articles copied into its columns. But checking our haste, we saw our own foot-prints; and, upon referring to the June number of this journal, we discovered the plagiarism. In one case, the first-named article was copied into the *Builder and Wood Worker*, with credit given to the *American Mechanic*, a journal copying with willful neglect of acknowledgment, which misled its contemporary into its error, but which the latter promptly corrected in its August issue. Our original productions are free to all who desire to use them, but we do expect the proper courtesy. Many other of our articles have "had free course" in the way of being reproduced in other journals, but generally duly accredited. Fair play, gentlemen, if ours is only a *California Journal*. In time, we shall so shape matters as that the only journal of its kind published on the Pacific Coast, will be received with due consideration.

"Art and poverty are not on friendly terms. The workman whose chief thought is to fill the mouths of his children can scarcely be expected to become an artistic operative."

It Will Ruin the Harbor.

One of the strongest arguments used a few years ago to defeat the Central Pacific Railroad Company's possession of Goat Island, was that a cutting down of its hills and high ground would be a necessity to place it in shape for practical railroad purposes, and the natural dump or place of deposit for the removed materials would be the Bay of San Francisco; and that such disposal of said materials would diminish the tidal area of the bay to an extent bordering upon its total destruction as a harbor to large ships. Every newspaper published in San Francisco at that time, not in the *special* interest of the Railroad Company, assumed and maintained the most hostile attitude to the measure, mainly upon these grounds, with this other added, that should the company succeed in securing the island, it would build up a rival shipping interest or colony in the center of the bay, to the serious detriment of San Francisco. But the strong point of argument was in the first stated feature of the case—damage to the harbor.

But the storm that howled so fiercely around the railroad people, exhausted itself with the defeat of the measure, since when the most serene calmness and indifference has prevailed, and all special interest in the preservation of the harbor has passed to rest, and the watchful newspaper guardians, who so diligently sought to avert a common disaster, seem content with the victory obtained over the "great monopoly," while at the present time the same company is prosecuting a work of filling in, which will reduce the tidal area and the flow of water through the "Golden Gate," millions of tons daily. The only difference being, that the rock and dirt used in the filling in is dug from the hills in Alameda County instead of from Goat Island, and the space filled in is on the shores of Oakland instead of in the center of the bay. Yet not a word is uttered in opposition to the work now going on, notwithstanding its effect upon the harbor, or the bar at its entrance, is and will be equally as injurious as though the island had been cut down and its debris deposited nearer the center of the channel. And to add to the evil, the Harbor Commissioners have also displaced, by the filling-in process, millions more tons of water, daily, and propose still further to reduce the flow over the bar, by extending and continuing the work of transforming watery places into dry land. So that if there was or is any virtue in the arguments so loudly proclaimed in reference to the possession of Goat Island by the Railroad Company—which we think there is—the Bay of San Francisco is in a fair way to be considerably damaged by the filling-in work now going on upon its two opposite shores.

There will be those however, who will sneer at and ridicule the idea that injury is being done by these "improvement works," as they are but specks compared with the vast extent of tidal area filled and emptied through the Golden Gate. But some facts are so stubborn that they can not be overcome, and the unyielding fact in this case is, that the "Bar" IS CONSTANTLY SHOALING, and the entrance to the harbor becoming more and more obstructed every year. Why is this? What causes this increase and enlargement of the sand and mud barrier at the inlet? Simply this: a *sufficient* quantity of water does not pass through "The Heads" to wash away and carry off into the ocean's depths the large amount of debris which from ten thousand sources, are emptied or washed into the harbor and tributary waters. Consequently, every additional foot of filling in that may be done, will simply be, as that already accomplished has been, feeders to the "hump" which lies at the threshold of the Bay of San Francisco.

"There are in British India two hundred and forty millions of as fine a people as ever lived; they are gifted, exceedingly skillful in the use of tools, and remarkably industrious, and their artisans possess fine artistic feeling. No country in the world possesses a building that can surpass in beauty and classic proportions the pile of marble known as the Taj-Mehal. America should make some effort to cultivate the friendship of this wonderful people."

"Kind words never die." A man realizes this bitter truth, when he sees all the kind words he ever used in his life, staring him from his published letters in a breach of promise suit.

Hollow Walls in Brick Buildings.

OMAHA, Neb., July 29th, 1880.

EDITOR ARCHITECT AND BUILDING REVIEW:

I observe in your July issue, that you advise the necessity of hollow walls in brick buildings, and also state the fact that such walls can be satisfactorily constructed, if the right principles are employed. As this opens a question of importance, I will briefly state the method of constructing hollow walls, which I have used in my practice during the past twelve years, and which I find gives thorough satisfaction.

Next to the outside four inches, I leave a hollow space of two inches, and on each fifth course bed a wire bond at each eight inches; these wire bonds are made from heavy telegraph wire, measuring one-eighth inch in diameter. They are cut sixteen inches long; two inches at each end is bent at right angles, leaving the bond twelve inches long. The mortar is first laid, and the bond wire bedded well into the same, on which the next course of bricks is laid, setting the end about one inch from the exterior face of wall, which bonds give absolute protection from dampness, and are much stronger. And a wall so tied, cannot separate and bulge out, as with the usual clipped header. Should setling occur there is much less liability of checks and cracks showing on the outer faces—the inner walls sustaining almost the entire weight of the building, which are always made of sufficient strength to perform their work within the limit of safe construction. The ventilating of this space in the wall is usually accomplished by connections with vent shafts, when such are used in the construction, or with flues, etc., as may be found necessary in either case. A strong current of air is easily kept passing through from the openings into the bottoms of the hollow space, where the air in shaft or flue is rarefied sufficiently. We plaster direct upon the brick work; and after a test of twelve years, papered walls, school-room black-boards, hard finished plaster, kalsomine, etc., etc., all remain as good as when first applied, so far as any causes of dampness are concerned. The cost of these bonds, and laying the same, is less than the loss of material, time spent in clipping the header courses, and the extra amount of brick used in the bond courses.

Not presuming that my experience is entirely new, yet it may be of some benefit to some of your readers. In the section of country where I have applied this construction to important buildings, and where it is almost universal for our storms to be exceedingly heavy and fall at an angle of forty-five degrees, the test is severe, and the result entirely satisfactory.

C. F. DRISCOLL.

One by One they Disappear.

The old wooden building, which during the past thirty years has occupied the southeast corner of Commercial and Leidesdorff streets, is rapidly disappearing, and the place which has so long known it, "will know it no more forever." As we noticed its slight, but time-marked timbers, yielding to the force of ax, crow-bars, and human muscle, we remember the time when the quiet street on which it fronts, was the center of business life, and the principal thoroughfare to the city front, with thousands of drays and teams of every sort passing to and from "Commercial Street Wharf," where hundreds of thousands of people arrived, landed, and departed by the Panama steamers. In the "early days," all was life and excitement in its locality. "Cheap John" auction stores lined parts of the thoroughfare; and in the same section of block, J. C. Duncan, then Tobin & Duncan, carried on their "Great Gift Enterprise," the first of which passed off with no greater dissatisfaction to ticket-holders, than, as was generally believed, the substitution of gifts as distribution of prizes, far less in value than those exhibited at the display prior to the drawing. The second "Magnificent Affair" resulted in the selling of $100,000 of tickets, for which the cash was paid, but for which never a prize was returned. By some arrangement, best known to the "enterprising" manager, the Sheriff stepped in with attachments, at the hour when the "drawing" was in progress in the old American Theater, on Sansome Street. The distribution of prizes has not yet been made, although some twenty-six or twenty-seven years have passed since the lucky numbers were announced.

The Mechanics' Institute Fair.

The fifteenth Industrial Exhibition was inaugurated by the opening exercises at the Grand Opera House, at 2 o'clock, on the 10th inst. The opening address was delivered by President P. B. Cornwall, reviewing the history of the Institute, from its first meeting, in 1854, down to the present time. The increase of its library, from the date of its first organization, in 1856, has been from 487 volumes, in 1856, to 30,000, in 1880. Its acquisition of property amounts to $257,000. Ex-Senator Sargent, as orator of the day, was listened to with marked interest. There are but few institutions which have been managed with greater general success, particularly in view of the fact, that this community is composed of persons from all parts of the United States, and many portions of the Old World; each and all entertaining personal views and opinions in harmony with the teachings and surroundings of their earlier, localized conditions. This fact argues well for the intelligence, good judgment, and common sense of those who have controlled and so successfully shaped the destinies of this noble institution through the years which have succeeded its first organization. While many other societies and associations, organized for noble and worthy purposes, both religious and secular, have surrendered to the ever changing conditions of things in this city, the Mechanics' Institute remains unimpaired in its usefulness and success; and from present appearances and prospects, its future is full of promises for good.

The building at present used for its expositions, will, in a few years, at farthest, pass from the control of the Institute. When this occurs, we hope to see a permanent building erected, which shall remain during the years of present generations, and pass down to those of the coming century, as an established center of brilliant results.

In our next issue we shall present the practical facts attending the present exhibition. The management have certainly exercised their best judgment in the present arrangement of matters generally; and we hope that the public will manifest a substantial appreciation of the efforts made to furnish them a pleasant place of resort, with things of practical interest and instruction on every hand.

Spreading and Extending.

The systems of railroads which are now in course of construction, and contemplated, linking California and this "sunset" coast generally, with the Eastern and Southern States, are matters of very general interest to the people of this city, as they present the possible opportunities for good or evil. With San Francisco as the grand center, their beneficial effects upon the business interests of the "Metropolis of the Pacific" will be large; but an injurious diversion is by no means impossible.

The Los Angeles *Herald* takes the following view of the situation: "With the Southern Pacific Railway within eighteen months of completion, giving our orchardists and vineyardists access to the Mississippi Valley in four, and, if fast trains are put on, in three days, the demand for our fruit and grapes should be practically unlimited. When it is borne in mind that the oranges grown here will hang on the trees all through the year, and can be marketed at seasons when they will encounter no competition whatever, they cannot fail to be eagerly sought after."

SOURCE OF MUSCULAR POWER.—The theory has been adopted by many physiologists of late years that the muscular system of a fully developed man, or other animal, in health, is merely a perfected mechanical apparatus which accomplishes work like a machine, not at the expense of its own substance—replacing it by the assimilation of food—but using the food directly; converting it into force without transforming it into muscle. Dr. Flint, however, in a recent work, examines this theory, and gives the results of a series of observations by himself and others, having for their object to test its correctness. After the most careful tests practicable, his conclusions are in opposition to the theory of direct food conversion, and lead him to adhere to the older assumption of muscular waste and repair, the muscles being their own source of power.—*Scientific Press.*

Chicago.

The *American Engineer*, published at Chicago, comes to us monthly, filled with matter of a high order on engineering subjects. We commend it to all engineers and parties interested in its subject-matter. We copy the following:

"Chicago is just now full of reform excitement, on matters which the civil engineer is supposed to control or influence. One prominent subject which has held a large share of public attention for some months, but from which the city has suffered for years, is the intolerable atmosphere caused by the smoke-cloud which hangs like a pall overhead. The immense manufacturing industries of this wonderful city, not confined to one district, but scattered throughout its limits; the large number of buildings which employ engine or boiler power, and the general use of coal throughout, has created a nuisance so obtrusive that the citizens have been compelled to invoke law for its amelioration. Towards this end a committee of citizens was formed, some time ago, to examine into the subject and report upon the necessary steps to be taken to alter the condition of things. They adduced evidence to show that it was possible to remedy the matter by the adoption and use of mechanical devices or methods to consume the smoke and noxious vapors, and the City Fathers are on the eve of making an ordinance compelling the use of such remedies. This prospect has, of course, raised a hubbub, and objections crowd in to postpone such an ultimatum. So far, however, the only serious objectors have been the railroads; yet, notwithstanding their opposition, it is praiseworthy to find them moving vigorously to discover a means to abate the evil on their part. It may be added that they claim that no device has been discovered to consume the smoke arising from Western coal. Still there is, no doubt, a means already in existence, which, combined with proper firing, will reduce the nuisance to a minimum. The railroads must recognize what Chicago has done for them, and that mutual good-will is in order where such a large source of revenue is constantly improving about them.

"Next in the list of reform comes the sewage problem, but this is no nearer solution than when we noted it in our last issue. The pumping-works scheme to assist the river is still in abeyance, and the citizens are slowly waxing more disgusted with the powers that be. Just now matters in the direction of sewage and sewerage are not so offensive, so there is somewhat of a lull in the question, but a change of wind is liable at any moment to bring all the evils prominent again.

"Added to the disgusting state of the river at times, there is always the subject of drinking-water pollution. To this we must now append an equally serious matter—the present state of the water supply and its possible failure. As is well known, Chicago obtains her water supply from Lake Michigan by means of tunnels into the lake, and a shaft protected by a crib. This crib has been in existence quite a number of years, and queries are being raised as to its condition and durability. Considering that a failure at this point would probably be disastrous, its stability becomes a serious question. The City Engineer, DeWitt C. Cregier, has suggested the construction of another crib as a measure of certainty.

"In connection with this new crib is intimately associated the question of adequate supply. The total capacity of the two water-works pumping establishments is 150,000,000 gallons per day. This is the probable ultimate capacity. The present consumption rapidly approximates this amount—so comparatively nearly, that the failure of an engine would be inconvenient, to say the least. Hence, the question is being seriously considered of contracting for another set of machinery, for which space was designed in the West Side pumping works.

"The consumption of water per head in Chicago is enormous—so much so, that one is compelled to assume that a very large percentage is absolute and unnecessary waste. But in Chicago there is little or no notice taken of waste of water; it certainly cannot be attributed to the quantity distributed over the streets.

"Our readers will see, from our few remarks, that just now we are on the eve of great engineering reform in Chicago. The rapid and continued growth of the city, its peculiar characteristics and location, must always make it the home of sewerage and water-works problems; for, should it continue to grow as it has done, these problems will magnify in a largely-increased ratio, as it would now seem that in both the questions mentioned, the city is fast reaching the limits for which the works were originally designed."

Complaints Against Architects.

It is not an uncommon thing to hear owners complain of "my architect," and relate occurrences and circumstances for the purpose of illustrating the incompetency, neglects, errors, and omissions of the party intrusted with duties, the proper fulfillment of which required intelligence, integrity, and faithfulness in a large degree.

This result arises from several causes. First, in the fact that there is no restriction or statutory regulation, which imposes upon those who seek to wear the professional robes of an architect, the necessity of exemplifying before an intelligent board of examiners, their competency for and abilities to perform duties which require the genius of great minds to perfect and pass down to after generations. In this country, anyone, be he by mechanical education and experience a tailor, blacksmith, carpenter, mason, or shoemaker, if he *claims* to be an architect, and possesses the force of character, the glibness of tongue, the "flower of speech," the mastery of argument, and legerdemanic, persuasive skill to make himself *appear to be* a very lion, although in deed and in fact an ass, he is recognized accordingly, and qualified men are in many instances prejudged by the standard of the fraud, rather than the fraud being condemned and rejected by contrast with those who are competent and qualified to perform intelligently and consistently the important trusts and responsibilities involved in house construction. If in this country, as in many parts of Europe, men were *not permitted* to practice the profession until they were able to pass certain tests by examinations, there would be far less cause of complaint, more consistency and pureness in architecture, and by far more healthful and substantial buildings generally.

Secondly. The disposition on the part of owners to diminish cost and expense of improvements, often leads to the employment of parties who in reality possess but a meager understanding of the true principles of architecture, and a still less knowledge of its practical demonstration, and whose only recommendation is their *price*. Men who have but a *poor stock-in-trade*, whether intellectually or in goods and merchandise, are willing to dispose of them cheaply, and those who buy such goods, or employ such talent! are somewhat like the housekeeper who buys *cheap butter* and low-priced eggs for cooking purposes, because of their cheapness in first cost, only to find in spoiled and strongly odoriferous intended niceties, distasteful and unpalatable waste of good flour and sweetening, palatable to no one, and especially disgusting to the economizing housewife. Tons of fine flour have been thus wasted, and millions of good brick and feet of lumber have been spoiled in their use by the admixture of *cheap* men as architects.

"Sublime folly" has its exemplification in nothing more than in the waste of material under the direction of this class of pretenders.

Thirdly. Owners sometimes are innocently misled and deceived into incompetent hands through "friendship," "social influences," and "society relationships." Thousands of "real good, clever, social fellows," win the confidence of others in matters, in the handling of which they possess not a single practical recommendation. But by a combination of these qualities and characteristics, and a sufficient intermixture of "cheek," they manage to work their way into the confidence of others, and by well-directed art, succeed in covering up business and professional disqualifications, and working their way through difficulties which would overwhelm more capable parties with disgrace.

There can be no "greater piece of folly" practiced than owners seeking low-priced architects. Every man who fully or fairly understands his profession, understands also the cost in persistent study, and diligent, earnest effort to acquire and perfect his knowledge. And it is not a fair proposition to ask that such men give their arduously obtained acquisitions in the art of building, at scavenger rates. It would be quite as fair and reasonable to expect an educated and acknowledged superior surgeon to give his time and skill at the rates charged by a leech-applying barber, or an educated attorney to draw a deed to valuable property, or defend or prosecute a case in court, for a consideration that would gladden the hearts of that class of lawyers whose education has been obtained by a police or justice's court practice, and whose law science would ill serve beyond an assault and battery or petty larceny case.

There is this other material fact which fails to impress the minds of owners. It is this: every man who builds a home, expects and demands fair and honest dealings, and would clamor terribly should he discover financial irregularities. But unimpeachable integrity can only be secured by the payment of a percentage for architectural services, which will make it possible for an architect to deal squarely and honestly. If he receives in percentage from the owner, barely sufficient to pay the wages of his employes, from whence comes the pay and profits of the principal? Men cannot afford, and will not render, services without some profit and compensation to themselves, and when ground down in legitimate compensation to cost of production of plans and details, we ask, is it not natural that other means and measures will be resorted to, to make up the deficiencies? And is it wise on the part of owners to seek to enforce conditions which compel men, in self-interest defense to adopt practices not recognized as legitimate and proper?

Charcoal and its Uses.

Charcoal, laid flat, while cold, on a burn, causes the pain to abate immediately; by leaving it on for an hour, the burn seems almost healed, when the burn is superficial. And charcoal is valuable for many purposes. Tainted meat, surrounded with it, is sweetened; strewn over heaps of decomposed pelts, or over dead animals, it prevents any unpleasant odor. Foul water is purified by it. It is a great disinfectant, and sweetens offensive air, if placed in shallow trays around apartments. It is so very porous in its minute interior, it absorbs and condenses gases most rapidly. One cubic inch of fresh charcoal will absorb nearly one hundred inches of gaseous ammonia. Charcoal forms an unrivaled poultice for malignant wounds and sores, often corroding away dead flesh, reducing it to one-quarter in six hours. In cases of what we call proud flesh, it is invaluable. It gives no disagreeable odor, corrodes no metals, hurts no texture, injures no color; is a simple and safe sweetener and disinfectant. A teaspoonful of charcoal, in half a glass of water, often relieves a sick headache; it absorbs the gases, and relieves the distended stomach, pressing against the nerves which extend from the stomach to the head. It often relieves constipation, pain, or heartburn.

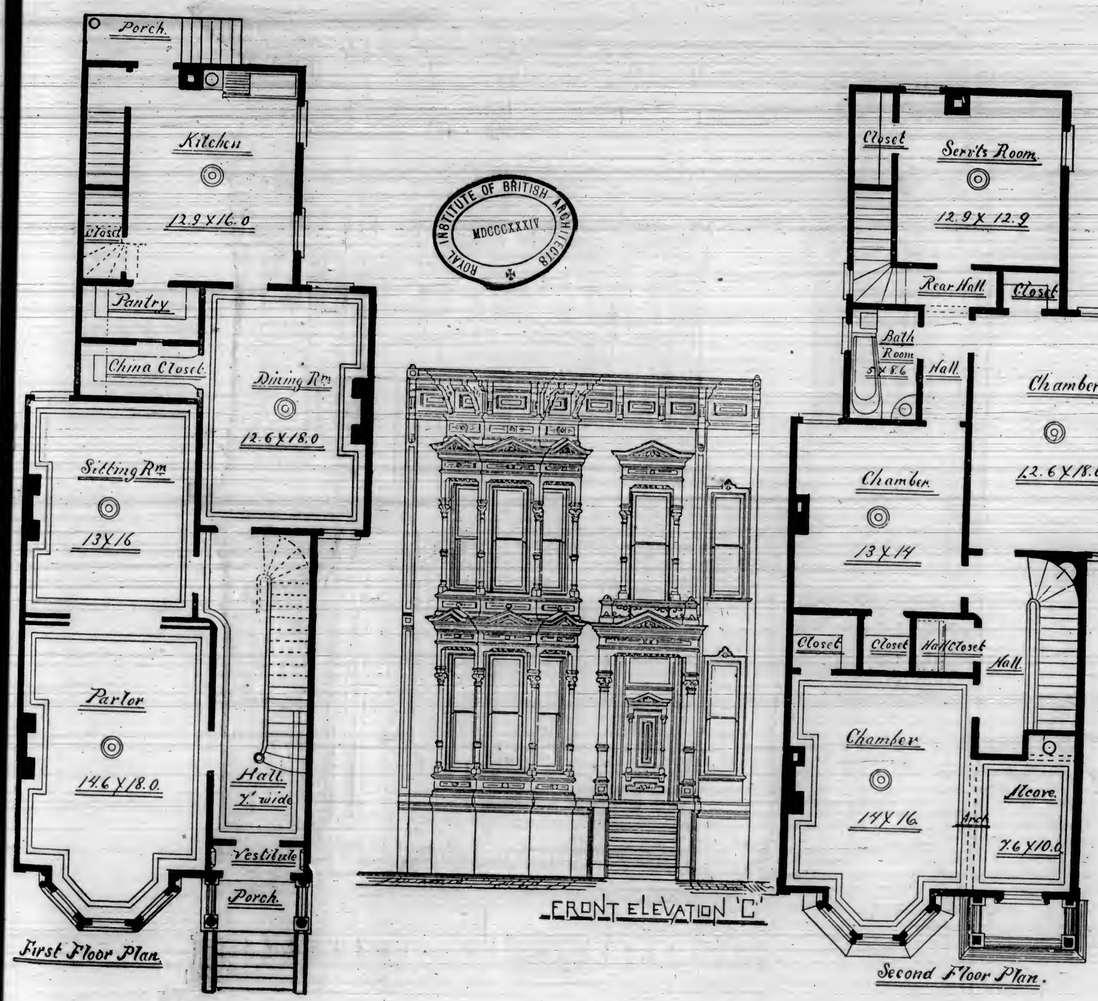
Our Illustration Plates.

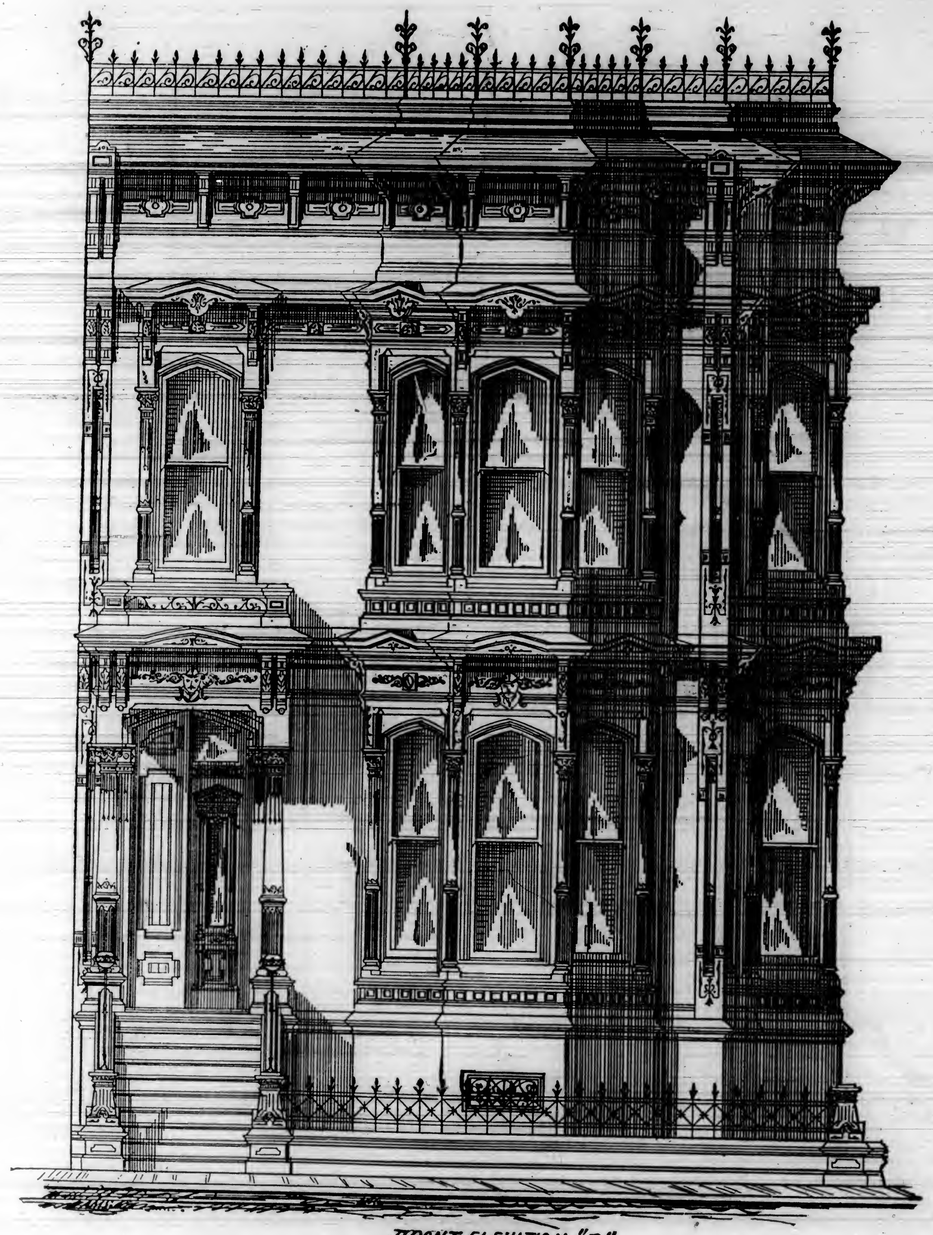
The front elevation marked *D*, and the corresponding floor plans, show a neat and comfortable private frame residence, with a large number of conveniences and modern improvements. The sizes of rooms, chambers, halls, and other apartments, are marked on the plans. Such a building, with 13 and 12 feet stories, brick cellar 7 feet 6 inches in the clear, and front fence, as shown, built in a substantial, workmanlike manner, with redwood for finishes, can be built for $6,000, complete, ready for occupancy. This figure may be lessened by economies in various ways, or increased, by adopting white cedar for finish, and in other ways elaborating details.

The other plan shown is a reproduction—caused by the indisposition of our photographic artist.

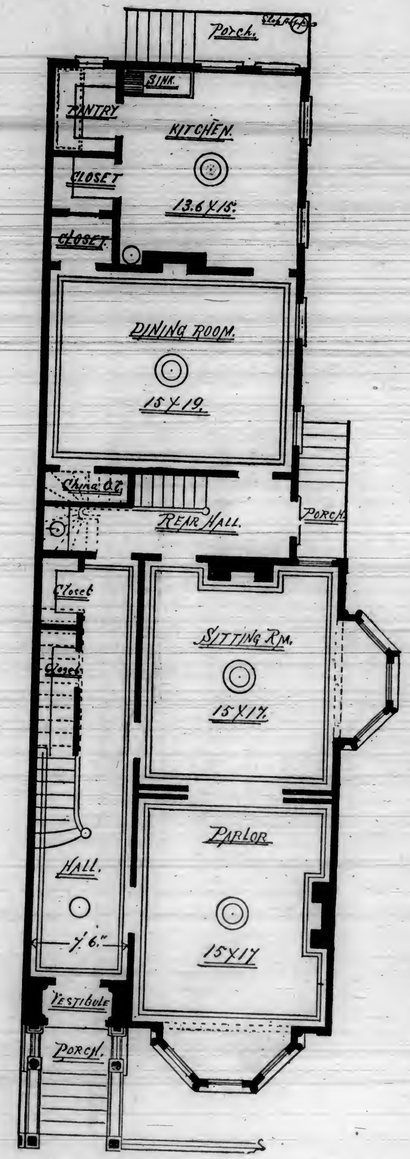
"SPRING."—We insert this cut, although not as well delineated as we desired, for its purity of suggestions. It introduces pleasing thoughts and reflections, and may be studied with interest.

THE HUMAN RETINA.—In a recent note to the Vienna Academy, Herr Salzer offers an estimate (based on numeration) of the probable number of optic nerve-fibres and of retinal cones in a human eye. The number of the former he supposes to be about 438, 000; that of the latter 3,360,000. This gives seven or eight cones for each nerve fiber, supposing all fibers of the optic nerves to be connected with cones, and equally divided among them.

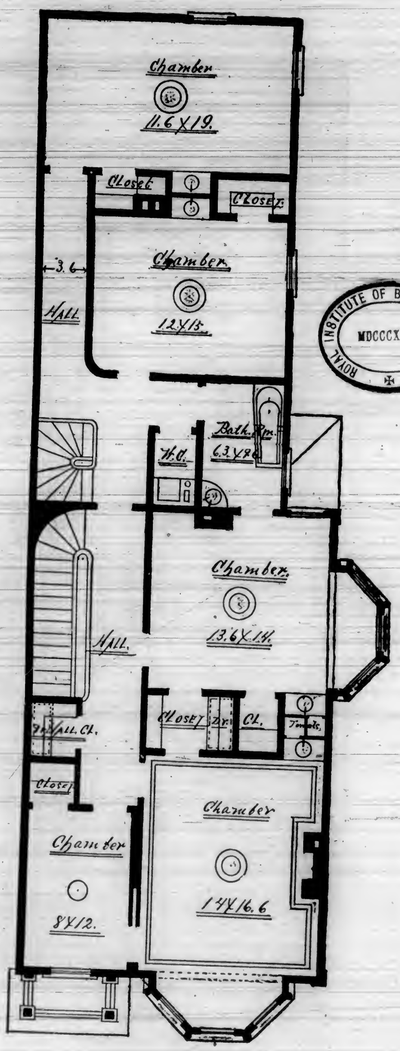




FRONT ELEVATION "D"



First Floor Plan. "D"



Second Floor Plan.

INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIV

To Distant Readers.

It may appear strange to some, that the principal topics discussed appearing in this journal are in relation to frame or wooden buildings. The reason for this is, that San Francisco is a city almost exclusively of wooden construction, outside the "fire limits." All of the most costly residences, as well as those of lesser pretensions, and tenement houses, are frame. The elegant residences of "the great railroad king" of the Pacific Coast, Leland Stanford, his co-operator, Charles Crocker, the "Hopkins mansion," and others of similar or corresponding magnificence, are built of wood. The reasons why this is so, are numerous.

First. In the "early times" lumber was, and is still plenty, and was the only building material available, except some few bricks which were shipped from the east by way of Cape Horn. These shipments were small, and the cost of eastern brick too great to secure any recognition as a building material in this city.

Second. "Everybody" who came to California in the earlier periods, calculated upon realizing a fortune in a short space of time and returning "home" to enjoy the fruits of their successes. Consequently there was but little consideration given to the erection of substantial brick constructions. "Anything will do for California," was a standing reply to all advice looking to permanency. As a rule, places built of rough boards on end, with battens over the joints, answered all purposes as business houses, and hundreds of residences were built in like manner, with clothed and papered walls and ceilings. Inexpensiveness was the controlling purpose generally, with but little attention paid to building houses "eastern fashion." This first condition of things established lumber as the chief building material, and the people of California have not as yet, fully overcome first principles, as far as brick residences are concerned. In addition to this, it was many years after the founding of San Francisco that the "grades" were permanently established. There was scarce a level spot of land anywhere in the primitive city, and sand dunes and ridges, and high hills of rock and clay formation, everywhere. The city grades were frequently changed, and hundreds who erected buildings by "official surveys," found that they were either too high or too low, or in part upon the land of other parties. All this conspired to retard the erection of permanent brick buildings.

Third. The prevailing sentiment was and is, that frame buildings are more safe against the effects of earthquakes, which doubtless is a fact; but as these visitations have abandoned San Francisco for so many years and sought other fields of operation, the people of the Pacific Coast have learned to think of them as only things of the past, none surmising more than the bare possibility of their return in a modified form, from the shocks of 1868, since when there has been only "slight vibrations" occasionally experienced.

Fourth. As stated in an article in a former issue of this journal, there were but few bricks produced in the early days, in California, and those not of good quality. The "salt-water bricks" created a decided prejudice against the use of bricks, and it is only since a better manufactured article has been supplied the market, that bricks made on this coast have been considered with favor.

Fifth. The greater expensiveness of brick edifices, and the supposed fact that brick constructions are more liable to dampness, and consequently less healthful. This is true to a certain extent, but in our July issue, we combated this proposition, and claimed that brick residences can be built, which will insure entire freedom from dampness, perfect ventilation, and complete healthfulness, as far as buildings are concerned.

Sixth. For a number of years, there were enforced conditions which compelled the erection of frame buildings. That is to say, that since 1849, the whole space from Montgomery street, at Clay, Washington, etc., following the irregular formation of the original "beach," out to East street, a distance of six blocks, with 412 feet, 6 inches, in each, or 2,475 feet, as a total, to which add 350 feet, for width of streets, making more than half a mile, has been "filled in," and in some sections, in such a manner as to shut in the mud, to save forcing it into the bay, and to lessen the quantity of filling material. This new-made ground did not furnish reliable foundation for brick buildings, without the extra expense of driving piles, which was an expensive operation, costing, as late as 1860, twenty-five to thirty-five dollars for each pile. But by slow degrees, this whole district has been brought within the "fire limits," except upon the bay margin, and hundreds of substantial brick buildings are now erected in localities far outside of where large ships used to ride at anchor, and the Panama steamers landed. In time, a new sentiment may obtain, and it is not improbable that brick buildings will be the rule. But while the residence portion of the city is built almost exclusively of wood, there are thousands of brick buildings in San Francisco, and among them, many substantial, well-built brick edifices, which would be a credit to any city, although as yet, "marble-front business palaces" do not adorn any of our streets. But as the hills and mountains of California yield a splendid quality of granite, and marble beds and quarries are abundant, producing various grades of that stone, from the unequaled onyx down to ordinary grades, there may, and doubtless will, be found marble suitable for building purposes; and it is by no means uncertain, that some of San Francisco's present inhabitants may live to see elegant marble structures erected of materials obtained within the borders of this State.

The Saddle against the Buggy.

The memory of man extendeth to the day when the boys on the farm were proud to ride a fine young horse to church or to see the girls. He took pride in the colts, and taught them to move freely under the saddle, and above all, when the colt was broken, he was taught to walk. Now, the boys must have a fine buggy and harness, and the colt must show his style and speed all the time. The boy is in too great a hurry to allow the colt to walk. The colt, buggy, and boy are soon a used-up set by fast driving. The whole business of buggy riding by farmers' boys is expensive, extravagant, and demoralizing. Not one farmer in ten can afford such a turnout for the lad. Many of them buy a buggy, and let it stand in the sun and storm. They are too poor to have a house for vehicles. Some men cannot afford the luxury of a buggy. If we could return to the fashion of riding on horseback, we would save millions to the farmers, and the boys and girls would develop better forms, and have better health. Any lazy lout can ride in a buggy, but to be a graceful rider on horseback, one must have some energy and get-up in his nature. There is life and health in riding on horseback. The whole system feels the invigorating effect of it. The rider and the horse catch the fire of sympathy and excitement in the run or fast paces, and every nerve and muscle of the body is brought into healthful, invigorating play. The mania for trotting horses has been felt on every farm in the land. The country is full of road horses, that some man or boy loves to pull the string on. They are usually poor saddlers, slow walkers, and rough. We need a reform. The place to begin is in breeding a class of horses of good size, style, and action, that can move freely in more than one gait. The English market is open for such horses. The well-knit horse, of good style and action, suitable for a hunter or a carriage, will bring better prices than our average horse. The farmer will find it to his interest to raise a class of colts that the boys will like to ride. He can raise three or four fine saddle-colts for what one buggy and harness will cost, and a fair saddle-horse will bring more than the average roadster.—*Nashville American.*

"SOME of the best artists of the present day are of Hebrew origin, but it is a historical fact that in ancient times the Jews were very deficient in artistic taste and constructive skill. Earlier and later nations have left many things behind that we admire even in this day; but, architecturally speaking, nothing worth admiring or imitating remains of ancient Judea. Two artists, and two only, are mentioned in the Book of Exodus as being qualified to execute the sacred vessels and utensils, and these were probably foreigners, or at any rate, imitators of Egyptian styles and customs. The chariots used by the Kings of Israel were made in Egypt, and the artists employed on the temple came from Tyre. During Herod's reign, many Roman, Grecian and Persian artists were employed in decorating and rebuilding Jerusalem."

Where do the Precious Metals Go?

Where do the precious metals go? $234,000,000 of which are annually produced, is a question easily asked, and one that is easily answered. "'*Tis the clime of the east, the land of the sun*"—that parallelogram of the earth's surface included between the Red Sea, the Himalaya Mountains, the China Sea, and the Indian Ocean, inhabited by nearly one-half of the human race, and among whom paper money is unknown—which has absorbed for centuries, and is still absorbing, more than three-fourths of the annual product of the precious metals. Rome, before the Christian era, imported carpets from Babylon, spices from Ceylon, silk (a pound of which was equal to a pound of gold) from Egypt, and precious stones and aromatics from India. The balance of trade due to the east from the mistress of the world in the time of Augustus was $4,000,000 annually—a sum which must be regarded as enormous, taking into view that at that time the relative value of gold to silver was only one to nine; that the wages of labor and the prices of commodities were much lower than in our time, and that England and France were Roman provinces and inhabited by savage races who dwelt in huts and painted their bodies, as our North American Indians did seventeen centuries later, when the Puritans landed at Plymouth and the Cavaliers at Jamestown; when Germany was a land of forests, with a climate as cold as Canada in our time, and when Russia was a land of bogs and morasses, with its surface very little raised above the level of the Mediterranean.

In our time all the countries of Europe, as well as the United States, are large consumers of coffee, tea, sugar, spices, silk, hemp, hides, dye-stuffs, tin, and other products of the East, which have to be paid for largely in gold and silver. The imports of the United States from countries beyond the Cape of Good Hope amount to $42,000,000 annually, while the exports amount to only $11,000,000. Great Britain and the other countries of Europe import annually from the East $160,000,000 more than they export to the same quarter. The exports of gold and silver from the United States during the last 31 years amount to $1,500,000,000, a sum greater than the amount of precious metals in existence two centuries ago. The Arabians, Persians, Hindoos, Chinese, and Japanese consume but little of the products of the Occident, while the products of the Orient are in great demand by the people of Europe and America. A French writer states that the Egyptians conceal $20,000,000 annually of the precious metals; and the Emperor of Morocco has filled 17 large chambers with gold and silver. The passion for hoarding is shared by the subjects of those princes. Silver pulpits and sacred ornaments of gold are very common in churches, temples, pagodas, and tombs throughout the Eastern hemisphere.

The inscription which Dante, in his imagination, saw placed over the portals of the infernal regions, "*lasciate ogni speranza voi che 'ntrate,*" might very truthfully be transferred to the portals of the East. The solution of the problem of the disappearance of the precious metals from the countries where they are produced, is *that the Orient is the reservoir into which continuously flows the gold and silver of the Occident*—a reservoir from which there is no ebb. It is with the precious metals as it is with our sweetmeats—we cannot have our cake and eat it too.—*The Economist.*

THE TREATMENT OF SPRAINS.—Mr. Dacre Fox, an English surgeon to a large railway company, who has had considerable experience of this form of injury, says that in the more severe cases he finds that after a few days of fomentation the best treatment is regulated pressure, by means of carefully adjusted pads and large plasters of a special shape, varying according to the particular joint involved. By this plan he feels sure that it is possible to control the effusion into the sheaths of the tendons and adjacent structures, to lessen the pain, and to shorten the duration of treatment.—*Scientific Press.*

A LITTLE boy in a Sunday School put a poser to his teacher. She was telling the class how God punished the Egyptians by causing the first-born of every house to be slain. The little boy listened attentively. At the proper interval, he mildly inquired: "What would God have done if there had been twins?"

An Awakening in the Lumber Interest.

We note with pleasure that the better times which seemed creeping into the lumber interests of the coast last fall, have at last so asserted themselves that measures have already been taken for increasing production. Our magnificent timber resources and the vast amount of capital already enlisted in developing them, have undergone a long period of quiet, and the result has been depression and scarcity of funds in the lumber regions. A change was imperatively needed to bring these enterprises into the line along which most of our special industries are moving. Last fall there seemed a chance to move for a better order of things, and the lumbermen were awake to avail themselves of it. Then, however, it was more or less a prospective matter, and the early spring demand was the test which should finally shape the industry. This, fortunately, was so favorable to a resumption of activity that nearly all the saw-mills in California, especially on the northern coast, are now running on full time and turning out their full complement of material.

The city trade is still light, and this may easily be accounted for by the fact that the influence of a prosperous year has not yet had time to exert itself in surplus funds in the hands of merchants, and by the other fact that there is small demand for new buildings, either for use or as an investment. In the country, however, there is considerable building activity prevailing, and calls for lumber are quite satisfactory to dealers. California red wood is being taken to Nevada and Arizona, and is preferred to the pine produced by local mills. This feature gives us an outlet which helps dispose of the large productions which busy mills send forward. It is not expected that there will be anything of special profit in the business, nor that high prices will prevail. It will be better for the general advancement of the country that they should not. With prices fairly remunerative to lumber producers, but not excessive, much more material will come under the carpenters' tools than would under a high price list. The result will be a marked improvement in our buildings, and activity in the lumber districts. These two satisfactory conditions are both dependent upon a reasonable rate for the product of the mill.

The improvement in this market of course influences all lumber district tributary thereto. A late dispatch from Seattle, W. T., says: "Seven Puget Sound saw-mills, representing an average capacity of 810,000 feet of lumber per day, have resumed full time, which would indicate that the depression which so long has prostrated the lumber trade of that section, is about to be superseded by fresh prosperity, calling for a largely increased production of logs and manufactured lumber." Thus, life at the center is calling forth activity in all the outlying prodncing districts. We hope all our readers will succeed so well in this year's labors that they can all make an investment in lumber for the improvement of their homes and farm buildings. There is no little satisfaction in driving nails, especially when the lumber is paid for.—*Scientific Press*.

True.

People who never think nor act beyond and enlarged from their individual, personal selfishness, cut but a sorry figure in the great, outstretching affairs of useful life. Like the snail, they crawl along through their periods of existence, encumbered by the shell of their own conceits and littleness, into which they invariably shrink away and hide themselves, when brought into contact with anything that requires the exercise of an enlarged and generous nature.

In many, this condition of mind and disposition is the outcome of natural mental and intellectual deficiencies. It is impossible for those to whom nature has bestowed sparingly of the necessary faculties and capacities of mind, for greater and better things, to rise above the contracted harmonies within them. It is no more possible for that class of animate life, which lives upon and beneath the soil, to spread wing and fly from flower to flower, gathering sweetness from blooming petals, than for those who see nothing greater nor better than themselves, to comprehend and understand the nobler qualities of truly great and wise men.

The Egyptian the Oldest Literature.

Professor Max Muller had long ago spoken of the *Rig Veda*, as belonging, in certain parts, to the earliest stages of human thought; but unless we throw back to a vast distance of time, the origin of Vedic literature, the literature of Egypt must take its place as, beyond comparison, the most ancient in the world. The exodus of the Israelites cannot, M. Renouf holds, be, with any probability, brought lower down than the fourteenth century before the Christian era, while the Great Pyramid cannot be more recent than 3000 B. C. The maxims of Ptahhotep belong to the age of the pyramids, and therefore have an antiquity exceeding, from fifteen to twenty centuries, the highest claimed for the oldest portion of the *Rig Veda*. It is, therefore, as M. Chabas has called it, the most ancient book of the world; but it appears, nevertheless, to be the authority of those who were then ancients, and it enforces a morality, which rests on responsibility to a personal Creator and Preserver of all things, whose unity is declared to be absolute. This belief is set forth in hymns, addressed, through a long series of ages, to what we may, if we please, call a multitude of gods. Osiris, Horus, Thoth, Amon, and many more, are each worshiped in language which, to all appearance, is purely monotheistic. A hymn, preserved in two manuscripts in the British Museum, speaks of "the bringer of food, the creator of all good things," and says that "he is not graven in marble, as an image bearing the double crown. He is not beheld; he hath neither ministrant nor offering; he is not adored in sanctuaries; his abode is not known; no shrine (of his) is found with painted figures. There is no building that can contain him. Unknown is his name in heaven; he doth not manifest his forms; vain are all representations." Yet this hymn is addressed to the Nile, which is identified with Ra, Amon, Ptah, and other gods. In another, Amon Ra is invoked as "the ancient of heaven, lord of all existences, the support of all things, the one in his works." It goes on to speak of him as "maker of men, listening to the poor who are in distress, gentle of heart when one cries to him. * * * Lord of wisdom, whose precepts are wise; lord of mercy, most loving, at whose coming men live; opener of every eye; the one maker of all that is; * * * lying awake while all men sleep, to seek out the good of his creatures. Salutation to thee, because thou abidest in us; adoration to thee, because thou hast created us. Hail to thee, lord of law! * * * the one alone without a second; king alone, single among the gods; of many names, unknown in their number."—*Saturday Review*.

The Mystery of Exchange.

We presume that most of our readers are aware that the quotation of foreign exchange represents a premium considerably in excess of the actual fact, but we doubt whether all of them know precisely what is the difference. By the usage of bankers, the old Spanish dollar is assumed as the par of exchange, £1 sterling being equal to 4 4-9 of these dollars. In point of fact, however, in the established moneys of Great Britain and the United States, £1 sterling contained as much gold as $4 87 of United States money, and this is the true par of exchange or rate which must be used in converting the money of one country into that of another. For instance, if anything costs £100 in Great Britain, its true value expressed in the money of the United States is $487. Accordingly, it is a fact, familiar to all bankers, that when exchange is quoted at 109½, there is no real premium, but the true par has been attained; because, if we multiply $4 44 4-9, which is the nominal par, by 109½ which is then the quoted rate, we get $4 87, which is the true par. We need scarcely add, that it is owing to this circumstance that the exports of gold from the United States are not larger. If there really existed such a heavy premium on bills of exchange, as many persons suppose, it would be immensely profitable to export gold to Great Britain. In point of fact, in view of the necessary expenses of freight, insurance, and loss of interest, the margin does not more than cover the risk. The United States half-eagle, it may be added, contains 116 grains of pure gold, equivalent to $5; the British sovereign, or pound sterling, 113 grains, equivalent to $4 87 of United States money.—*The Economist*.

The Atmosphere in Early Ages.

The deposit of carbon during the Palæozoic age was enormous, requiring a correspondingly long time, because owing to the great amount in the atmosphere, so much needed to be removed before any sensible effect upon temperature was produced. During the Mesozoic, there being less carbonic acid in the atmosphere, a shorter time sufficed to produce an equal effect. For like reason the change of temperature during the Tertiary was more rapid until about the close of that period, after which no further change occurred, the elimination and supply of carbonic acid seeming to have become equal. Closely allied to the question as to the length of the geological divisions, and in its explanation identical with it, is that which asks why there was so great a difference between the duration of the earlier and later types of life. The length of a geological division is really the length of a certain type of life, and that which accounts for the one accounts for the other. The facts which have been considered, viz., the abundance of coal and lignite, both certainly of vegetable origin; the smallness of the amount of CO_2 which could have been derived from volcanoes; the universal warmth; the present non-existence of the early species; the almost total extermination of species at the end of each of the geological ages; the absence of arctic cold, or other sufficient cause for such exterminations; the appearance of new species, and these always in the direction of progress toward present conditions; the great disproportion between the length of the earlier ages and the later, and the disparity in the duration of the corresponding types; the world-wide extent of these phenomena—all these are so in harmony with an atmosphere richer in carbonic acid than the present, that they serve to demonstrate its existence. How much carbonic acid there was at first in the atmosphere it is impossible to determine. It now forms only three or four ten-thousandths of the whole. Forty or fifty times that amount would very decidedly affect temperature, partly by its own influence, and much more indirectly, by increasing the capacity of the air for water. One hundred times would increase the warmth somewhat more; but, if after that, ten, or even twenty times that amount were added, the temperature would be scarcely affected; while the effect upon the flora and fauna of the period would be of the most decided character. In the Azoic time the amount of carbonic acid in the atmosphere must have been enormous.—*The Penn Monthly*.

Ancient American Giants.

The Rev. Stephen Bowers notes, in the *Kansas City Review of Science*, the opening of an interesting mound in Brush Creek Township, Ohio. The mound was opened by the Historical Society of the township, under the immediate supervision of Dr. J. F. Everhart, of Zanesville. It measured sixty-four by thirty-five feet at the summit, gradually sloping in every direction, and was eight feet in height. There was found in it a clay coffin, including the skeleton of a woman measuring eight feet in length. Within this coffin was found also the skeleton of a child about three and a half feet in length, and an image that crumbled when exposed to the atmosphere. In another grave was found the skeleton of a man and woman, the former measuring nine and the latter eight feet in length. In a third grave occurred two other skeletons, male and female, measuring, respectively, nine feet four inches and eight feet. Seven other skeletons were found in the mound, the smallest of which measured eight feet, while others reached the enormous length of ten feet. They were buried singly, or each in separate graves. Resting against one of the coffins was an engraved stone tablet (now in Cincinnati), from the characters on which Dr. Everhart and Mr. Bowers are led to conclude that this giant race were sun worshipers.

GLASGOW MUNICIPAL BUILDINGS.—At a late meeting of the Glasgow Town Council, it was stated by the Chairman that the whole of the ground required for the new municipal buildings had been acquired at somewhat less than the sum estimated. The plans for the buildings, which would cost at least £150,000, were to be thrown open to competition, and premiums of £750, £500, and £300 were to be given for the three best designs.

A Sewage Steamer.

How to dispose of the city refuse to advantage is a problem in New York which has not yet had a satisfactory solution. The present cumbrous and very expensive method is of the most primitive kind, which must soon be superseded, in the nature of things, by improved appliances. The corporation of Liverpool has adopted a steam dredger which is proven to be a success in every respect, and we have reason to believe it has received the attention of the New York Pilot Commissioners, and others, intrusted with the duty of preserving the harbor. The vessel is of 500 tons, 140 feet in length, 23 feet broad, and 11 feet in depth, specially constructed for the economical and speedy conveyance of city refuse for deposition in the deep sea. The new vessel differs from the Clyde hopper steamers in having a hull wider at the bottom than at the top, and divided into five pairs of tanks, with separate doors to each; the latter with balance weights, so as to open rapidly for the escape of material. A pump of large dimensions can be used at will to force any light material through the open doors. This craft is supposed to be the forerunner of many such steamers, as it is well calculated to promote the sanitary arrangements of all our seaport cities. It is represented as dredging at about half the cost of the old system — the results such as to "silence all objectors." Of course it is not expected that an innovation of this character can be brought about without opposition, for those who handle the city refuse have a very sweet thing as it is, and will not surrender without a protest.—*American Ship*.

A Tramp Trap.

It is a well-known fact that freight cars are a great resort for tramps. These cars afford them traveling conveyance, sleeping apartments, and everything which conduces to make the life of a tramp pleasant and comfortable. To hunt them out or to capture them while in these cars has been one of the great studies of railroad men. One of the most prominent citizens of Colorado Springs has invented what he calls a "tramp trap." It consists of an ordinary freight car, in which is a movable bed resting on spiral springs, something like a spring mattress. To this bed is attached a clutch, which acts on an elliptic spring connected with the doors. The movable bed is adjusted so as not to move until a required weight is upon it—say 1,500 pounds, the average weight of ten tramps. In this car are placed several boxes of crackers, baskets of wine, boxes of cheese, bundles of cigars, and the doors are left wide open. These articles are soon discovered by the tramps, and they begin to swarm around the car and to enter one by one. When the required weight is in the car, the bottom suddenly flies up, throws out the clutch, and the doors close quick as a flash and fasten with a spring lock. The tramps are thus secured until the proper officers come and kill the tramps. We understand the inventor has made application for a patent, and the right to use the same will be placed at a very low figure, as he wants to benefit mankind, and not to make money.—*Railway Age*.

Mechanics Clearly Defined.

Two classes of men are to be found in every trade. The one reads and seeks to find out everything pertaining to his trade; the other never wants to see a newspaper. One man says: "What do I want to read a newspaper for? I can learn all I want to without the aid of the best newspaper published in the world." The other subscribes to the best journals that give him information in regard to his particular line of business. Compare the difference between two such men. The man who reads is by far the better qualified; while his willingness to learn something, from any one who can teach him, renders him a far more reliable man to employ. No particular merit exists in the mere reading of either one journal or another; and no employer will engage a man simply because he takes this journal. But we do believe that a careful, studious workman, no matter whether his spare time be spent in reading this or some other good book or journal, is of more value to his employer than one who reads nothing and believes he knows it all.

Very Disagreeable.

One of the most disagreeable, small annoyances imaginable, is the singing, humming, and sometimes, roaring noise, which occurs in the water pipes in buildings, during the filling of tanks, after quantities of water have been drawn for bath-tubs, and similar purposes. Persons of nervous temperament become greatly distressed at times from this cause; and thousands of unpolished expressions and words not found in the decalogue, are indulged in by strong nerved men under such circumstances. This effect is especially provoking, when occurring at night, from some member of the family taking a "late bath," after others have retired. We were recently present in a family at the bed-time devotional exercises, and the "head of the family" became so interested in the hiss and hum that was ringing through the house, that among other blessings remembered at the "throne of grace" was, "O, Lord, receive our thanks for the abundant supplies of that precious water which now maketh its presence known beneath our humble roof." The meaning of which was, perhaps, that if he had been a swearing, instead of a praying man, there would have been a marked difference in the character of the language used.

This difficulty can be effectually prevented in new, and remedied in buildings already erected, by a simple device now in process of patenting in this city.

Architects' Omissions.

We speak of the luxury of the modern house. Perhaps luxury is hardly the right word for what we mean, but it is hard to find another. We mean the care that is taken to prevent the inmates, in going from room to room, or on any occasion but that of purposely "going out," from ever meeting the external air. Closed corridors, double doors—above all, gas stoves—are, in our view, mischievous luxuries, tending to enervate the body, and to shorten life. Here the architect may say, that he only provides that for which there is a demand. Has he fairly looked the problem in the face? And, having done so, has he laid his own conclusions before his client? A drafty house is one thing; a stove is another. The location of the ticket offices in the Charing-cross Station, swept, as they are, by every north wind, without the shelter of a screen, that might be so readily provided, is a thing as to which we have often perfectly marveled at the long suffering of the public. On the other hand, it is to the over-heating and under-ventilating of some of our royal and noble residences, that we owe, in our opinion, the loss of some invaluable lives. These, and such as these, are some of the problems which have to be solved by the great architect who would build, not for to-day only, but for the future.—*London Builder*.

THE New York *Tribune*, in discussing "Rural Improvement," commends the movement which has been so successfully begun in New England and in this State, to improve the appearance and health of suburban towns. It insists, however, that this work shall be intrusted to trained and competent men. "Amateur engineers will make wild work in constructing systems of drainage, until a decimating fever will demonstrate the need of training and experience in matters of such moment. Amateur artists in landscape decoration will fill a township with incongruities and deformities." In short, the objects of rural improvement associations will be reached most surely and speedily, "when their members realize their own incompetence, in view of the magnitude of the task before them, and are willing to employ thoroughly-trained and skillful masters in the various departments of the work contemplated;" all of which we heartily commend.

"PERHAPS the most powerful elevator in the world is the one now used on the Washington monument. It will carry ten tons to a height of five hundred feet. It is arranged so as to run twenty feet above the top of the stone work. During the progress of the work upon the monument, it will be used to deliver material to the builders, and when the monument is completed, it will be turned into a passenger elevator. Unlike the elevators in the New York post-office, it is said to be perfectly safe and not at all likely to get out of repair."

"NEW ENGLAND dealers in machinery report a lively foreign trade in machinery. A complete set of wood-working machines, with shafting and motor, with man to set it up, was recently sent from Boston to Amsterdam, Holland. Wood-working machinery has formerly been sent abroad in pieces, but this is the first instance in which an entire shop has been shipped. The demand for American machinery in Holland is said to have been caused, partially, by the exhibit of American manufactures at the fair in Antriem last summer. It seems to us that our largest fields for operations in wood-working machinery lie in Australia, New Zealand, and Russia, where conditions, as regards materials and wants, are similar to our own. Manufacturers, no doubt, are aware that the places mentioned must soon become enormous users of these productions."

THE PECAN FOR CALIFORNIA.—Dr. Strentzel, from long observation, is convinced that the pecan is the nut-tree for California. For two or three years in starting it requires good care, after which it will prove a hardy tree here. Its useful qualities for timber are similar to those of the hickory, to which family it belongs. Its wood is darker than the hickory. It starts easily from seed, is naturally a rapid grower, and is a handsome street, shade, and ornamental tree. It fruits in from 10 to 15 years. It takes kindly to this climate, and invites cultivation.

Market Report.

Few changes have taken place since our last issue. Nails show an upward tendency, and have advanced 25 cents a keg. Glass remains the same as our last report. Doors, sash, and blinds have not changed. A little increase in the demand for lime and plaster, has not affected the price. Everything in the building line looks more cheerful than for some time past.

OREGON PINE.

Common Rough, up to 40 feet, per M feet				$18 00
"	40 to 50	"	"	19 00
"	50 to 60	"	"	20 00
"	60 to 70	"	"	21 00
"	60 to 80	"	"	22 00
Refuse Rough				14 00
Common Rough, sized with planer $2 additional on above rates, per M feet.				
No. 1 Flooring, 6 inches and over, and Stepping		per M feet		30 00
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring		per M feet		30 50
Rough Clear for flooring, $1 less than above rates, per M feet.				
Second quality Flooring and Stepping, per M feet				21 00
Ship Plank, rough		per M feet		25 00
"	planed 1 side	"		28 00
"	planed 2 sides	"		30 00
Deck Plank, rough		"		28 00
"	dressed	"		32 50
Laths		per M		3 50

REDWOOD.

Rough Merchantable	per M feet	$20	00
" Refuse	"	16	00
Surface, No. 1	"	30	00
Surface, 1 x 8	"	28	00
" 1 x 6	"	28	00
" No. 2	"	22	50
Rustic, No. 1 1 x 8	"	28	00
" No. 2	"	25	00
" 1 x 10	"	30	00
" short, 8 to 10 feet	"	25	00
" " under 8 feet	"	14	00
T. & G., 6-inch, 12 feet and over	"	27	50
" " 7 to 11 feet	"	25	00
" " under 7 feet	"	20	00
" " No. 2	"	20	00
" Beaded, 12 feet and over	"	27	50
" " 7 to 11 feet	"	25	00
" " under 7 feet	"	20	00
Half-inch Surface	"	27	50
Pickets, fancy	"	20	00
" rough, pointed	"	16	00
Pickets, rough, square	per M feet	$14	00
Siding, ½-inch	"	20	00
Port Oxford White Cedar	per M feet	$30 00 to	45 00
Sugar Pine	"	30 00 to	50 00
R. W. sawed shingles	per M	2	00
Battens, ½-inch			75

HARDWARE AND NAILS.—We note the following reduction:

10 to 60 pennies, are quoted at	$4 25
8 " " " "	4 50
6 " " " "	4 75
5 and 4 " " " "	5 00
4 and 5 pennies, brad heads at	5 50
6 " " " "	5 75
8 " " " "	5 50
10 and upward " " "	5 25
3 penny fines " "	7 75

LUMBER.

Receipts since our last—4,109,000 feet lumber, 3,276,000 shingles, 141,000 laths, 15,550 posts, 16,354 railroad ties, 697 cords wood.

Total receipts since January 1st:

Lumber, ft	107,717,447
Shingles, No.	39,780,032
Laths, No.	9,032,700
Wood, cds.	15,441
Piles, ft.	26,000
" No.	2,968
Cedar, logs	1,758
" ft.	72,980
Rosewood, logs	32
Shakes	643,500
Pickets, No.	20,000
Hoops, bdls.	7,133
Staves	12,299
" bdls.	1,235
" cds.	23
Railroad Ties	177,179
Posts	329,684
Sugar Pine, ft.	1,409,000
Barrel St'k, pkgs	17,571½
Spars	59
Wool Slats	74,000
Stave-bolts	78,000
" cds.	173½
Telegraph Poles	108

Receipts continue light as usual, but the market has a firmer tone. Demand moderate.

Building Intelligence.

As will be seen from the present report, compared with those of the early months of the present year, and for the past three previous years, there is a large increase in the building business. The number of buildings reported this month is greater than has been reported in any one month since 1877. The outlook for continued building prosperity is favorable.

There is no journal or newspaper issued on this Coast, which furnishes so large or as correct building reports as appear monthly in this journal. This information is obtained at a large expenditure of time and labor, yielding no other return than the satisfaction of doing our patrons good service. It is not claimed that errors have not occurred, or that future reports will be entirely free from incorrectness in detail. But this one thing is certain, that the best that can be, is done by us to obtain unimpeachable and reliable statements. If from special motives and designs, or innocent mistake on the part of those who should be familiar with the facts, misinformation is given us, it is not in our power to make the correction.

SAN FRANCISCO.

Two-story frame building on Twenty-fourth and Barton streets. Owner, Martin Bulger; architect, T. J. Welsh. Done by day's work, at a cost of about $3,000. This was reported last month as a one-story improvement, since when it has been made two-story.

Main building and side section of one-story and basement on Hill and Valencia. Owner, Wm. Ridgway; contractor, Jacques & Co. Cost, $2,000.

Two two-story frame buildings on corner Eleventh and Natoma. Owner C. Dunker; architect, P. R. Schmidt; contractor, H. Thom Wordhen. Cost, $6,000.

One two-story frame store and dwelling on Washington avenue and Howard. Owner, P. Hotaling; contractor, Ed. Terral; architects, Kenitzer & Raun. Cost, $6,500.

Two-story and brick basement on Twenty-first near Guerrero. Owner, Herman Westerfeldt; contractor, Mr. Dryer.

Alterations of house on Nineteenth near Mission. Contractor, Wm. Phunz. Cost, $550.

Improvements and alterations of a two-story house on Bush, between Leavenworth and Hyde. Owner, Adam Grant; architects, Kenitzer and Raun; contractors, Mahoney Bros. Cost, $7000.

Two-story frame at the corner of Polk and California. Owner, J. Lankershim. Day's work. Cost, about $3,000.

One two-story frame packing house, on Ellis, between Larkin and Hyde. Owners, Hoffman & Herman; architect, Guilfuss; contractor, Kindsman.

Improvements and alterations of a two-story frame on Pacific street, between Polk and Van Ness avenue. Owner, Mrs. Sol. Sharp; contractor, Wm. McCormack. Cost, $1,500.

Two-story frame on Polk near Pacific. Contractor, Mr. Bodie.

Alterations and improvements of a house on Jones, between Vallejo and Broadway. Owner, D. Sweeney; contractor, J. Morriss. Cost, $1,000.

Alterations and improvements of a brick building corner of Front and California. Owner, John Parrott; architects, Kenitzer & Raun; carpenter contractor, George Bowler; brick contractor, Jos. Thornhill.

One two-story and brick basement on corner of Franklin and Clay. Architects, Kenitzer & Raun; brick work, Thornhill; carpenter work, M. Rodgers. Cost, $20,000.

One-story cottage on Potrero avenue, between Twenty-fourth and Twenty-fifth streets. Wolfe & Son, architects; F. Mitchell, contractor. Cost, $3,000.

Addition two-story frame, Twenty-first near Fair Oaks.

One-story cottage, Sutter near Steiner. Owner, Mrs. Howland; contractor, John Bruce.

Two-story and basement, northwest corner of Tyler and Franklin. Owner, J. Levy; architect, Mooser; contractor, F. Klatt. Cost, $1,600.

Alterations of house 108 and 110 Taylor street. Owner, Miss Carson; architect, A. Laver; contractor, D. Jordan. Cost, $3,110.

House, stables, stock barn, blacksmith and carpenter shop, near Martinez, which have been in process of erection for some time, are now about completed. Total cost, $20,100. Architect, A. Laver; contractor, C. Ackerson.

Two two-story frames on Eddy, near Steiner. Owner, A. Burmeister; architects, Mecker & Banks; contractors, Walker & Grant. Cost, $4,000.

Two-story double house on Lewis street. Owner, Wachtel; architects, Meeker & Banks; contractor, Walker. Cost, $1,700.

Alterations of building on Chattanooga street, between Twenty-second and Twenty-third. Owner, A. Whitesides; contractor, J. Dutten. Cost, $1,000.

Additions to building 618 Grove street. Owner, S. Miller; contractors, Little and Cummings. Cost, $350.

Alterations and additions to building 632 Sutter. Owner, Dr. J. H. Stallard; architect, W. Winterhalter; contractors, Weinochl & Co. Cost, $1,750.

Alterations and additions to building 813 Pierce street. Owner, W. F. Drathman; architect, W. Winterhalter; contractor, John Blake. Cost, $1,900.

One-story brick building for blacksmith shop on Geary st., between Dupont and Stockton. Owners, Donnegan & O'Day.

Two-story brick building, with basement, on Mission st., between 4th and 5th. Owner, Oscar Foss; architect, H. T. Bestor; wrought-iron work, J. R. Sims; cast-iron work, Lewis & McCormack; done by day's work, at a cost of about $6,000.

One two-story frame on Sanchez, between 15th and 16th.

Two-story and basement, on 17th and Douglass.

One-story and basement, on Hancock, between Noe and Sanchez.

One-story frame, on Clipper st., between Church and Sanchez.

Enlargement of barn, and new carriage apartment, Eureka st., bet. 19th and 20th. Owner, A. Davidson; contractor, T. W. Wilcox.

Improvements to stable, 18th and Sherman. Owner, H. Runda; contractor, T. W. Wilcox.

Brick building on Sutter st., between Dupont and Stockton; 93 ft. front, 72 ft. deep. Owner, Robt. Ewing; architects, Wright & Saunders; contractor brick work, —— Lyons.

Two-story frame, on corner of Geary and Webster. Owner, D. Mendehlson; architect, J. A. Remer; contractor, Ebner Walker. Cost, $5,000.

Six two-story frames, with cellars, on cor. 17th and Hoff avenue, north side. Owner, Calvin Worrell; contractors, Terrill & Slaven. Cost, $12,000.

Two-story, brick basement, and stable, on south side of Pine, bet. Octavia and Laguna. Owner, Capt. Thos. G. Taylor; architects, Wolfe & Son. Cost, about $10,000.

Two-story improvement, north side 21st st., west of Fair Oak st.

One-story cottage, 28x45 feet, M st. and 11th avenue, South S. F. Owner, Chas. W. Smith; architects, Wolfe & Son.

REDWOOD CITY.

Two-story cottage. Owner, N. J. Britton; architect, Clinton Day; Contractors, Moore Bros. Cost, $5,500.

OAKLAND.

Additions to a building in East Oakland. Owner, D. Harris; architects, S. & J. C. Newsom; day's work.

Additions to G. W. Harrison's house at Highland Park; architects, S. & J. C. Newsom.

FRESNO CITY.

Two-story house and stable. Owner, R. Barton; architects, Meeker & Banks; contractor, J. Treadwell. Cost, $10,000.

MARTINEZ.

Alterations and additions of house belonging to Paul Shirley; architects, Meeker & Banks; contractor, J. W. Mayberry. Cost, $3,700.

YOUNTVILLE.

Stable, 96x100. Owner, Col. Fry; architects, Meeker & Banks; contractor, J. Treadwell. Cost, $2,000.

ALAMEDA.

On line of Narrow-gauge R. R., one-story frame. Owner, —— Lapham; architects, S. & J. C. Newsom; day's work.

BERKELEY.

One-story frame building. Owner, Byxbee; architects, S. & J. C. Newsom; day's work.

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The California Architect and Building Review.

VOLUME I. NUMBER 9. SAN FRANCISCO, SEPTEMBER, 1880. $1.50 per Annum, in Advance. Single Copies, 15 Cents.

The California Architect

—AND—

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager.

Sent to any part of the U. S., postage paid, at $1.50 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

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San Francisco's Returning Prosperity.

The gloomy clouds of inactivity which for so extended a period have hung over the business and manufacturing interests of this State and city, are rapidly disappearing. In all kinds of mechanical operations vastly improved conditions are seen in all directions. This is especially true in connection with the building business. There is not an idle *competent* workman, in either the carpentering or brick-mason's department. In fact, there is a great scarcity of brick-layers, and ere long the demand will be largely in excess of the supply. This state of affairs is likely to lead to an increase of wages, either by demand of the workmen themselves, or in the shape of inducements offered by employers to fill up the number of men necessary to the proper execution of contracts. There is also a scarcity of good carpenters; and when to the new buildings now under way, there is added the many others positively contemplated, and for which plans have been prepared, or are in course of preparation, additions to present forces from abroad will be a necessity. Those who have delayed their building operations will be compelled to submit to increased expense and cost. We direct attention to our "Building Intelligence" report appearing in this issue, which furnishes a splendid showing of building operations. We hope that journals using this information from our columns, will practice the proper courtesy of due credit, as it is the most complete, correct, and reliable report published, and is obtained at consid, erable cost of time and labor to us.

Its Constitutionality.

Since the publication of the "Mechanics' Lien Law," in the July issue of this journal, a large number of owners, contractors, and material-men have desired an expression of opinion from us, as to the constitutionality of the law as it now stands. But, as this is a matter which can be settled finally only by the decision of the Supreme Court of this State, we prefer to renew our formerly expressed advice to owners, to be careful in the letting of contracts to good, reliable men only, and then the lien law practically, whether constitutional or otherwise, will become a dead letter. Such laws are entirely unnecessary, where all parties are honest, and intend to act rightly in matters generally. It is simply a legal enactment, intended to prevent loss to creditors, through misappropriations, concocted frauds, etc., by dishonest parties.

"Olympic Park"—Salt Water Baths in the Center of the City of San Francisco.

We have heretofore referred to the matter of introducing salt water into any portion of the city *without any cost of motive power to accomplish the result*. We again state as a fact, that the thing is POSSIBLE, PRACTICAL, AND EASY OF ACCOMPLISHMENT. "North Beach" has held a monopoly in the salt-water bathing line for many years, and parties desiring the health-imparting effects of salt-water baths have been compelled to visit that quarter of our city to enjoy the luxury. There is no good reason why this should continue, as a sufficient quantity of water for bathing and endless other purposes can be lifted over any of the hills within the city limits by the natural tide action of the waters of the bay.

This is a matter which commends itself to the attention of the projectors of the "OLYMPIC PARK." If to the many contemplated sources of amusement and pleasure there is added salt-water bathing—and that, too, at the mere cost of laying the pipes to convey the water, and inexpensive, self-operating machinery—the attractions of the park would be greatly increased, both for purposes of pleasure and health.

The editor and manager of this journal has made this problem a matter of study for many years, and holds himself ready at any time to practically demonstrate the proposition.

Building in New York.

The number of buildings *in process of erection* in New York City, is stated by various exchanges received, to be from 1,000 to 1,100; the total cost of which will be, when complete, $15,000,000. This sum, of course, will be distributed among the working classes and dealers in the various kinds of building materials.

AMERICAN MACHINERY IN ENGLAND.—American machinery for the manufacture of shears has lately been introduced into Sheffield by the manufacturers, to the great dismay, it is said, of the operatives, who, up to the present time, have had the reputation of being the most arrogant of strikers. The forging and grinding machines introduced are reported to be giving the most complete satisfaction, and, now that they have been introduced, will no doubt contribute materially to the settlement of labor troubles.—*Scientific Press.*

THE STEEL SQUARE.

Its History and Application to Buildings.

It is our intention in the near future to commence an exhaustive series of articles on the steel square; the history of its invention; the numerous improvements that have gradually been made upon it; its practical adaptation to the framing of bridges, houses, barns, etc.; also curious problems that may be solved with it, with the aid of a ten-foot pole. We will strive to make the articles as interesting as possible; and wherever it becomes necessary to explain our meaning by the aid of designs or cuts, we shall be fully prepared to illustrate any of our own, or any other question or problem proposed to us for solution. We cordially ask every Architect, Contractor, Bridge-Builder, Carpenter, and Mechanic to assist us, as far as it lies in their power, in this enterprise.

As it will involve a considerable outlay for cuts, etc., we hope that every mechanic on the coast, will feel it to be his duty to help the only journal of its kind published this side of the Rocky Mountains, by forwarding the amount of one year's subscription to this office; promising that the aid so received will be devoted to the further improvements of this work, both in scientific and literary productions.

This particular subject will receive the special attention of our business manager, whose experience as a practical mechanic, and his knowledge of mathematics, will insure correctness. The series of articles proper will not only be interesting to our readers, but will—if preserved for future reference—form a book worth many times the amount of the yearly subscription cost of the CALIFORNIA ARCHITECT AND BUILDING REVIEW.

"Everything Fair in Love and War."

In its issue of August 25th, the "*copyrighting journal*" of San Francisco used the full "Building Intelligence" report originally appearing in the August number of this journal, with this modest introduction: "*Late local building improvements embrace the following.*" Its readers doubtless supposed that the information given them was another illustration of "journalistic enterprise," and that the statement presented was legitimately obtained and original matter, but it was not. The information was derived from the columns of this journal, and proper credit withheld, just as all honorable journals do not. Sorry that our neighbors are offended because we so clearly and effectually exposed their "copyrighting" blunders. But people sometimes recover from violent attacks and "bad spells," and we shall not grow angry if, to help make its columns interesting and readable, some of the matter obtained by this journal at considerable cost in time—and "time is money"—is copied without credit. Neighbors, when you feel inclined, just say that you obtain your building intelligence from the CALIFORNIA ARCHITECT AND BUILDING REVIEW—that is all.

Cheap Labor.

It means this and nothing more as a rule: wealth to the lesser and impoverishment to the greater number. The theory that cheap labor lessens the cost of production, and therefore brings within the reach of all the possibility of securing the comforts of life at moderate outlay, is not substantial. The argument does not remove the fact that when men are ground down in wages to mush-and-molasses compensation, that there will never be any surplus to spare for reasonable comforts, it matters not at how low cost they may be obtained; while those who possess wealth, or even no more than comfortable living means, profit by the oppressions imposed upon those who toil their lives away for a mere subsistence. This fact is fully established the world over, and in connection with every class of operatives, and furnishes the basis which justifies the stereotyped saying, that "the wealth of the world is most unequally divided." Millions of men have grown rich by the various processes of small compensation to others, who from necessity are compelled to accept the bone, while their employers and financial masters fatten upon the choicest cuts. It matters not to him who receives no more for his toil than sufficient to keep the wolf from his door, how heavily laden with rich clusters the vines of earth may be, what abundance of luscious fruits may hang upon the trees of orchards, or what sweetness and strength-yielding qualities there may be in the meat of well-fed animals. All these are beyond his reach, and his eyes can only admire and envy them and the dress and fine attire of those who enjoy fine things; while he, from day to day, pursues his journey to the grave, powerless to enter into the enjoyment of any of the higher or more refined pleasures of life, beyond the surroundings of his humble home, whatever they may be.

A Nimble Thing.

There is nothing more so than a spicy, well-conceived, highly-embellished untruth. Nor is there anything more bold and daring. The fact that detection and exposure is sure to follow, has but little or no restraining influence upon that class of human beings to whom average truthfulness is a stranger. They will "look one right in the eye," and with an assumed earnestness declare the correctness of statements which they know to be false. There is a fascination in concocting, originating, and stating a greatly magnified or whole-cloth misrepresentation, which seems to overleap all bounds of caution in the line of truthfulness. Even people who would feel highly incensed if charged with lying, will, *when it serves a purpose*, lie without the least compunction of conscience. The fact is, that the much larger proportion of the human family regulate their statements by their own personal feelings and interests. When individual, family, or business considerations stand between the pure, unvarnished, unadulterated facts, and a distortion of the truth, or a downright lie if need be, the altar of sacrifice is at once set up, upon which either interests or honest veracity must be the victim; and notwithstanding all the pratings about moral integrity, purity, uprightness, etc., etc., it is simply delusive and farcical to suppose for one moment, that on an average one in each one hundred of earth's inhabitants would not wrench and twist facts terribly in part, if not as a whole, as personal interests might demand, or willfully falsify and misrepresent to shield those interests. But aside from interested motives, the spirit of the age runs more in the line of exaggeration than after solid truths. The facts of life are tame realities which only occasionally present enough of romance, comedy, or tragedy to vary the common routine in which spicy things do not appear. Consequently, to relieve the monotony—tinted, high-colored, and sometimes jet-black stories are invented and circulated; and the masses appear to relish this sort of thing, because there is generally more variety and vivacity in a highly-embellished, fairly proportioned misrepresentation than in a simple, plain, consistent fact; and many prefer to cling to an error after its exposure, rather than accept and believe the real facts involved.

The Future Lumber Supply.

What are the lumbermen of the Pacific Coast doing to replace the forests they destroy? This is a serious matter, and it ought to be looked squarely in the face. It is attracting the attention of shipbuilders, and other lumber interests, on the Atlantic side, and it should not be neglected on the Pacific, where the lumber industry is assuming vast proportions. In relation to this business, the *American Ship* thinks that the Lumbermen's Association should consider the matter, and endeavor, through the action of its members, to secure protection for the timber lands, so that the trees shall be thinned out rather than destroyed, and given an opportunity to make fresh growths from year to year. That journal says: "Some legislation may be needed in the public interest for the protection of the forests against the cupidity of men, anxious only about present profits; and the Lumbermen's Association ought to be able to suggest measures that will be fair to all interests. There is scarcely a nation in Europe that does not to-day regret its neglect to provide in time for forest culture, though nearly all now have laws on the subject. The existing laws in this country are really applicable only in the far Western States, where there are public lands which might be worth obtaining for forest culture. In the States now most in need of growing forests, there is very little tree planting; but the waste goes on at a great rate."—*Scientific Press.*

Open Wells.

In cities, towns, villages, and country places, where supplies of water cannot be obtained from natural-flowing springs, brooks, rivers, or other similar sources, water must be obtained from wells of some sort; and generally open wells are dug—and frequently without any special exercise of good judgment in selection of location, compared with surroundings, contacts, etc. As a rule, "*near the house for convenience sake,*" is chosen, and for the same reason the vault of the water-closet is "*conveniently located,*" without the slightest regard to consequences, or any intelligent purpose to protect the well from the various contaminating agencies, which by seepages, drainages, soakages, etc., from the surface of the ground used for ordinary living purposes, are great; and if the underground formations be of a porous character, the filtration of cesspool fluids into the well completes the ruin of its water as a healthful beverage; and with these conditions largely augmented, the sources of unhealthfulness are proportionately increased.

It matters not how pure well-water may be naturally, its purity can be retained only by its preservation from impure and disease-creating impregnations of any sort. And this can be effected only by removal and location beyond the possible reach of all such causes.

Our earth is mainly a great book of leaves; stratification upon stratification, running and lying everywhere—alike through rock, sand, gravel, clay, and all other formations. These stratifications form the underground channels, or sheds, through which much of the water deposited upon the mountain-tops, in the form of rain or snow, finds its way back to the ocean, occasionally breaking forth in its course in cool and refreshing springs by the wayside or in the valley; and sometimes these underground currents are brought to the surface by means of wells and other mechanical appliances.

This porous and stratified condition of the earth's formation permits the penetration of fluid matter; and if that which is of an impure and contaminating character is allowed to intermix with the feed-current to wells, the extent and degree of bad result must be in exact proportion to the quantity of unwholesome intermixture.

"ONE serious breach of the rules of sound construction in the building of city stores and dwellings, is the purely American method of running up side walls, three, four, or five stories, and placing in the floor and roof timbers before the front wall is started. Architects and builders assert that they can put up dwellings and stores more rapidly this way, or in other words, that it is a cheaper method, and that, by putting up the front wall last, it is saved from being bruised or broken by the hoisting of other materials. This is, no doubt, true, but is it not sacrificing too much to expediency and cheap work? Are not our buildings generally put up altogether too rapidly to be safe? Is it not about time that we should pay more attention to having our structures strong, safe, and durable, rather than cheap?

In order to make buildings substantial, the walls should be run up all together, tier upon tier, layer upon layer, without any more breaks in the continuity, than are needed for doors and windows, so that the walls may be well tied at the angles, and so that the settling and shrinkage may be equal in all parts. When buildings are put up in the manner first mentioned, the settling and shrinking of the walls will be very unequal, because they are not built together. The tendency will be for the front wall to leave the sides, and no matter how well they may be tied together, the settling of the front wall will be so much the greater, that there will be a great strain upon the ties and connections. In case of fire or unusual weight, it is not unlikely that the whole block will crumble into dust and ruins.

No doubt there are many buildings in which the front walls are built in such a way, that the dangers referred to are avoided, but these exceptions are very unusual. It seems to us that, if parties about to build would only determine to have good and substantial houses, there would be no trouble in obtaining them, as our architects and builders would design and build accordingly. But so long as superfluous ornamentation is preferred to absolute security, so long will the country be cursed with flimsy, tumble-down structures of the Madison Square Garden *genus.*"—*Builder and Wood-worker.*

Ladies the Best Planners.

In many particulars in connection with the comforts and convenience of family residences, the mistress often displays better judgment than the master. Nor is this fact at all strange. If the lady is observant and intelligent, her continued experiences and contact with the general arrangement of home more fully qualifies her to comprehend alike the convenient and practical, and the objectionable arrangements met by her in home experiences, and gathered in the course of her visits among friends. Sometimes men are obstinate, and refuse their wives the privilege of any say in the matter—following their own views in all things; but as a rule, better and more satisfactory results are reached, when the opinions of an intelligent wife are at least consulted. Although some architects "don't want anything to do with the women," yet it is questionable whether every man in the profession who enjoys the patronage of female clients, either as wives or sole owners, has not received from them many sensible and practical suggestions; and it is perfectly reasonable that it should be so; for while the architect may fully understand the theories and principles of architecture in every phase and department, he cannot understand the detail workings of his plannings, except so far as he may have "tested them" in some special manner; while the women-folk are brought in hourly contact with all defects or perfections that exist, and are thereby the better qualified to at least express an opinion. In addition to this, it is an incontrovertible fact, that many ladies enjoy much better general ideas of planning buildings than do their husbands; not because the husband lacks good intelligence and business capacities, but for the reasons already stated. Home and house experiences on the part of the wife, and the intense desire and determination on her part to have everything just as it should be, naturally qualifies and leads the mind to right conclusions. With all the objections urged by some, to women interfering with such matters, if the many little details of occurrences that transpire during the period in which the "talking over" of plans is indulged in between man and wife could be discovered, perhaps there would be but few well-arranged houses found not to a large extent shaped by the mind of woman. For from the hour when the husband reveals an intention to build, the wife, as a rule, enters heartily into the proposition, and she at once commences to study up her part, not only so as to secure for herself all of the little conveniences of arrangement which would never be thought of by the husband, but to make the house generally as perfect in detail as the amount of money to be expended and "best judgment" will accomplish. Consequently, in the repeated discussions which ensue, the wife introduces this, and that, and the other feature, until by the time a final conclusion is reached, first thoughts are materially changed, and, to a greater or less extent, the wife's ideas and suggestions permeate almost if not quite every arrangement of the building.

HOW TO LAUGH.—As to laughing, how seldom, except on the stage, do we hear a really musical laugh! Some girls make dreadful grimaces when they laugh. A little education in the art would not make it artificial, and they would surely enjoy it all the more if they could realize that they might indulge in mirth without making themselves look so very ugly, as is occasionally the case. It runs in families sometimes to distort the countenance in laughter. I know a family who laugh a great deal. Their eyes always shut up when they do so; and it is the funniest thing when one dines with them and something amusing is said, to look around the table and see exactly the same distortion on every face. There is not an eye left in the family. Three sisters, whom I know, show quite half an inch of pale pink gum when they laugh. In their presence, like Wendell Holmes, one "never dares to be as funny as one can," for fear of seeing this appalling triple vision of gums. A little training in childhood would make their laughter a pleasant thing to look at, for they have all pretty little square teeth, very white and even. Henry Ward Beecher says: "A good laugh is worth a hundred groans in any market," and I am sure a pretty one is worth a thousand.—*London Truth.*

Between Russia and China.

"'ALTAI' (*i. e.*, gold mountain), is the term vaguely applied to the high range in the east of Asia, forming the northern border of that vast table-land known by the name of Chinese Tartary, and extending from eighty degrees to one hundred and forty-two degrees east longitude. The Altai mountains constitute the boundary between the Russian and Chinese empires, or between the long icy lowlands of Siberia, stretching away to the Arctic Sea, and the variegated central plateau that lies south of them. Their general direction is from east to west. They are divided into many ranges and groups, each having a distinctive name. From the Sea of Okhotsk, in the extreme east of Asia, they extend in a broad and winding mass to the plains of Turkestan, a little to the west of Lake Zaisan, or Zaizang, a distance of more than 3,000 miles. The breadth of the system is in some places not less than 800 or 900 miles. From Okhotsk to the Lena, it is called the Aldan Chain; it is next separated into three groups by the valleys of the Amur, Yenisei, and Irtish; the last of which is called the 'Little Altai,' to distinguish it from the spur that strikes off into Chinese Tartary in a south-easterly direction, and which is called the 'Great Altai,' a range that in some places towers into the region of perpetual snow, and whose most easterly cliffs abruptly disappear in the dark clouds which overhang the sandy steppes of Gobi. The Russian Altai between Semipalatinsk and the sources of the Obi have been colonized by the Russians, and as they rival the Ural Mountains in their mineral wealth, they have already become one of the most important districts of the Russian Empire. This chain consists of a broad alpine range on the northwestern edge of Chinese Tartary, and is called the '*Altai-Bjelki,*' or Snowy Mountains. It reaches in its highest peaks an elevation of nearly 11,000 feet. Little is known of the geology of the Altaian system. Jasper is found in considerable abundance near the summits, red porphyry lower down, and granite still lower. Around Lake Baikal there are numerous granite masses interspersed with newer igneous formations, but active volcanoes do not appear until the range reaches Kamtchatka. The mines are rich in copper, gold, silver, and lead. The botany of the mountains is as imperfectly known as the geology, but it seems to be worthy of closer attention. North of the Altai-Bjelki lies the broad zone of the Altai mineral districts, the inhabitants of which are employed as miners and agricultural laborers, over whom a strict watch is kept. The southeast is peopled by Calmucks of the mountains, a Mongolian race. They are heathens, and their government is a patriarchal one. They lead a nomadic life, encamping in summer among the rich pastures on the mountain terraces, and in winter within the sheltered recesses of the woody glens."

AN IMPROVED ELECTRIC MOTOR.—M. Marcel Deprez, a well-known electrician, has brought out an improved electric motor, in which a piston of soft iron is attracted up and down in a hollow cylindrical electro-magnetic coil, with a motion like that of an ordinary steam-engine piston. This principle is not new, having been employed by Page, Bourbouze and Du Moncel, in the construction of electro-motors. The novel point, however, about the motor of M. Deprez, is that the magnetism of the soft iron core is never either reversed or interrupted. This was the weak point of the earlier machines; but it has been obviated in the new form by the device of dividing the solenoidal coil into sections like the separate coils of the ring armature of the Gramme machine, the current being thus transmitted first to one part of the cylindrical coil and then to another. The commutator, which distributes the current successfully to the various sections, is worked by an eccentric on the shaft on the fly-wheel in the ordinary way, but the "lead" does not require to be so much as a quarter of a revolution.—*The Iron Age.*

"This is a nice time of night for you to come in," said a mother to her daughter, who returned from a walk at 10 o'clock. "When I was like you," continued she, "my mother would not allow me out later than 7 o'clock." "Oh, you had a nice sort of a mother," murmured the girl. "I had, you young jade," said the mother, "a nicer mother than you ever had."

Keep Clear of House-bugs.

As a general rule, houses in California are far less infested with bugs of any sort, than is common in the Eastern States. And of the common "bed-bug," there are but few; and what there are of those are the imported stock, brought hither in old furniture, clothes, etc., and appearing mainly in buildings along the city front, used for "sailor boarding houses." We have never heard of their presence in the better class of buildings; still, there may be such cases. But exemption from these are fully counterbalanced by live, active, vigorous, California fleas, which cease not day nor night to nip and bite, and draw the current red. And, if the latter insect is less offensive to smell, when crushed, the former have their redeeming trait of not tormenting the subjects of their attack during "the waking hours of day."

But so long as nests and hiding-places are provided for roaches and house-bugs, in the erection of buildings, it is reasonable to presume that the little creatures will occupy such quarters. The causes of this defect in building exists in three special directions: first, owners are not generally willing to incur the additional expense of making their buildings bug-proof; second, architects have not practiced any special care in this matter but have been content with the erection of otherwise "good," "elegant," "costly" buildings, leaving the bug question to take care of itself—with this qualification—that the "bug nuisance" is not universal, and, therefore, not a general evil, against which provision should, from common necessity, be made. Still there are many cases of complaint, even in the better class of buildings. The third point, is the reluctance with which a majority of contractors carry out provisions of a contract, varying from "common rules," or the "usual way," particularly when the importance and necessity for the thing proposed is not fully comprehended and understood by them. Still, all parties agreeing, the exclusion and prevention of bugs of every sort, in dwelling-houses, is an easy matter in the hands of any competent architect and careful builder. The following extract from the *Plumas National*, is quite pertinent:

"A BED-BUG TRAP.—Edison may be a chieftain among inventors, but if he had lived 3,000 years before Christmas he never would have dropped on such a family blessing as our friend, Tom Orton, did when he accidentally left his cribbage board in the blankets at the foot of his bunk. Tom didn't have bugs, but his bed did, and had 'em bad. After the crib-board had been in the bed all night his eagle eye made the discovery that most of the holes had been located by enterprising bugs, and he instantly "tumbled" to the idea. False head-boards, foot-boards, and side-boards, bored with innumerable gimlet holes, were provided, and every morning the boards were taken out and the locators scalded. The mortality among the bugs has been fearful since the invention, and the boys down that way, as they roll into their blankets, and drop peacefully into pleasant dreams, pray for blessings to fall on the inventor of the 'Orton Thousand-Holed Crib-Board Bed-Bug Destroyer,' which has brought peace, rest and comfort to the sleepers of the North Fork."

THE WONDERFUL ADAPTABILITY OF PAPER.—The adaptability of paper to numerous important and widely varied uses is wonderful. What other substance can be satisfactorily substituted for wood, iron, and such common materials, to the extent that paper can be? It is impossible to find anything else which, like paper, may be so differently and dexterously prepared, as regards flexibility, thinness, strength, durability, imperviousness to fire and water, etc., that it can be readily made into pails, washbowls, dishes, bricks, napkins, blankets, barrels, houses, stoves, wearing-apparel, curtains, bonnets, newspaper and writing sheets, wrappers, carpets, coating for iron ships, flower-pots, boxes, parchment slates, coverings for the leads of pencils, jewelry, lanterns, car-wheels, dies for stamping uppers of shoes, roofing, and many other things. It is this tendency on the part of paper to take the place of everything else, to become a universal substitute, so to speak, which leads to the conclusion that the future has a grand development in store for it; and that in years to come its manufacture will hold a magnificent position among the great industrial interests of the world. —*Chicago Journal of Commerce.*

Gleanings from the S. F. Real Estate Circular.

"The total number of sales for the month was 193, of the value of $1,157,677."

"The obstacles which have prevented the laying of the Haight-street cable street-railroad have been removed, by concessions by the opposing property owners upon the sewer question."

"DEPOSITS IN OUR SAVINGS-BANKS.—The deposits in the nine savings-banks of the city now amount to $41,395,008. Their total assets are $44,932,627. The deposits of our savings banks six months ago amounted to $44,354,965. These banks have now nearly $4,000,000 invested in national, State, and city bonds. They have $815,269 loaned on such securities, mostly on call, and they have nearly $2,500,000 in cash on hand. The reserve or safety funds of these banks amount to $1,707,816, and their paid-up capital, available to make up bad losses, amounts to $1,686,842. The dividends paid by our savings-banks have averaged 5½ per cent. per annum."

"SALE ON FRONT NEAR CLAY.—The two-story and basement brick building and lot east side of Front, 83 feet north of Clay, 27½ feet front, by 120 feet in depth, back to Cedar street in rear, has been sold for $21,000. The property is under lease at $200 a month."

"SAVINGS-BANK RULES.—There was a time when savings-banks had one scale of charges for interest and for settlement of loans paid off before maturity, but now some of them seem to have no rule or conscience in their charges. When the borrower complains, he is told that the officers are only enforcing the rules of the bank. This is told with the utmost gravity, and with a sort of injured air, as though the borrower who objected to the rules of the bank must be an exceedingly unreasonable person indeed."

"SALE CORNER MAIN AND FOLSOM STREETS.—The vacant land N. W. corner Main and Folsom (S. W. 91½x137½) has been sold for $15,400."

"SALE CORNER FRONT AND WASHINGTON.—The property southeast corner Front and Washington streets has been sold for $19,500. The lot has a frontage of 25¾ feet on Front, by a depth of 120 feet on Washington street, back to Cedar street in rear. The building is an old one-story frame."

"OFFERS FOR REAL ESTATE REFUSED.—We know of offers, amounting in all to about $300,000, which have lately been made for city property, and which the owners have refused. The offers in all cases were fair ones, considering the dull condition of the real estate market."

"SALES OMITTED.—We have this month omitted several pretended sales from our list, either because the property was traded in exchange only, or because false considerations were put in the deeds."

"THE CHINESE WON'T GO.—A short time ago a Chinaman applied to us for a loan on some real estate in the Chinese quarter. We told him that no one would loan there, as people feared the Chinese might possibly have to move, and that their immigration would probably be stopped. This the Chinaman denied most emphatically. Said he: 'The Chinaman will never go from here, and I'll bet you a million dollars on it.' It certainly seems, too, that John was right. There has been a great fuss made, it is true, but it has all ended in smoke. There has been no reduction in the number of Chinamen coming here, nor increase in the number of those going away. And now, to crown all, we have the establishment of a line of their own steamships between this port and China. This, too, is but the beginning. The Pacific Mail Company has heretofore used all its influence for the Chinese, because they were the mainstay of its steamship line. The company was also a party to the arrangement, which was in the nature of slavery, under which the Mail Company would not issue a ticket to a home-returning Chinaman, unless one of the six Chinese secret companies allowed him to leave. The Mail Company will soon be run off the Pacific Ocean, so far as the Chinese freight and passenger business is concerned, by this new Chinese steamship company. The poor feel the effect of Chinese competition first, but rich and poor, individuals and companies alike, feel its blighting effects in the end. The Chinese have been the blight of California; but for them we would have at least a quarter of a million more white people in the State to-day. The Chinese and stock gambling have been our two special curses."

"AN ANSWER WANTED.—Pray how does it come to pass that the instant a hitherto tolerably decent man is elected to a political office, his whole being seems to change for the worse? Actions that he would have shuddered to even think of committing *before* his elevation, (or degradation, if you will) to office, he performs as calmly afterward as though his whole future depended upon his swelling his record with the Devil. Specific promises made *before* election are as quietly ignored afterward as if they had been entirely forgotten."

"SALE OF THE VILLA BLOCK AT THE PARK.—The block bounded by Fifth and Sixth avenues and C and Fulton has been sold for $25,000. The 'Villa' building and grounds occupy this block. The building is worth $4,000 to $6,000. A lease for three years on the property was lately recorded, at $100 a month for the first, $125 a month for the second, and $150 per month for the third year. The block has a frontage of 240½ feet on Fulton and C streets, 500 feet on Fifth and 530 feet on Sixth Avenue. The Fulton-street front faces the Park."

Cool.

In previous numbers of this journal, reference was made to the fact that many of our original articles have been copied by Eastern publications; by some of them without any credit to us, and by others with credit given to other journals, which had done the same thing, and passed off as their own, matter which first saw daylight through our columns. Feeling that we are entitled to due credit in such cases, we have called the attention of the editors of such journals to the facts of the case, and with but one exception, they have all promptly corrected the error or omission. From the exception we have received the following, in answer to letters directed to them:

"NEW YORK, August 23rd, 1880.

"DEAR SIR—I am in receipt of your favor of the 13th; and I also acknowledge receipt of a letter from you of similar import, bearing earlier date. The several articles which you have found, [in our journal] and which you say were in the CALIFORNIA ARCHITECT AND BUILDING REVIEW, first reached us in the columns of our Eartern exchanges, and at the time of publishing them, we were not aware of their origin. We are in the habit of giving credit for all clippings from our exchanges whenever we are fully assured to whom the credit belongs, and we would be the last to take anything from your columns knowingly, without giving proper credit. Trusting that this explanation will be entirely satisfactory, I remain, Yours respectfully, —— ——."

The plain admission is made in the foregoing letter, that the articles were copied from "our Eastern exchanges," but this fact does not place the journal in question in any more excusable light, as no credit to any source accompanied the publication of the articles; and whether taken from our columns, or those of Eastern publications, credit was due to some source; but they were published in a shape calculated to lead to the conclusion that they were original matter. And the fact that they were taken from "our Eastern exchanges," simply goes to prove that our original matter has been unfairly dealt with by more than one journal. This fact we very well know, as we have had occasion to ask correction at the hands of several other publications. The REVIEW is regularly mailed to the offending journal, and by notice of dates, at least, discovery of probable first source was in their possession.

The substance of the letter above quoted is about as follows: "Dear Sir—We have used two or three columns of your original matter—have passed it off to our readers as our own—they have accepted it as such, and we don't want to say anything to the contrary in our columns. But we are willing to make this little *private* acknowledgment to you personally, hoping that it will pacify your feelings, while we derive whatever general benefit may accrue from the use of your articles; not only so far as our own journal is directly concerned, but many others may copy the same articles from us, not knowing that it is appropriated matter, and as a matter of course—as all fair dealing journals do—they will give *us* credit; and so far as it goes, we can in this way run our journal in part at your expense. But then, you know that you have our private explanation, which *we hope* will compensate for the little journalistic error committed by us. We admit that credit is due you for your original matter, but we think it best to continue the unfairness toward you, as to do otherwise and make the correction, would further tend to make known the fact that there is a journal published in San Francisco from which we obtain some of our articles. True, the usual evidence of originality existed in your journal, but we presumed that you California editors copied all your good articles, and that we were justified in disregarding such usual evidence, and appropriating the matter in question to our own uses and advantages." This is the thread of argument contained in the letter in question, which was written by the proprietor of a prominent New York journal, devoted to the interests of carpentry and building. Had it been a less pretentious publication, we should not have wondered at the omission. The virtue of honorable intentions is best sustained by honorable acts.

A Curious Physical Phenomenon.

A curious physical phenomenon has, says *Nature*, been lately described by Dr. Grassi in the Proceedings of the Royal Institute of Lombardy. An apparatus is formed of three concentric vessels, with an annular space of about two centimeters between the first and the second, and the second and the third. The outer space is filled with oil, and the next with water. The oil is heated by a gas furnace to a little over 100 deg., and the water boils. Then hot oil at, for example, 150 deg., is poured into the central space. This quickly cools to a temperature close to 100 deg. Dr. Grassi found that the central oil cooled more rapidly the higher the temperature of the outer oil; and with more delicate apparatus (in which the vaporized water was conducted and returned, and the outer oil kept at any required constant temperature) he arrived at definite numerical results, which he tabulates. With the outer oil at a mean temperature of 129·9 deg., for instance, the time of cooling of the inner oil from 130 deg. to 110 deg. was 49 sec.; when the former was 105·1 deg., the latter was 57 sec. Alcohol and ether gave more decided results. The maximum difference was obtained with ether; the outer oil being at 57·5 deg., the inner took 25 sec. to cool from 57 deg. to 50 deg. (7·); whereas the former being 39·3 deg., the latter became 39·5 sec. In all the experiments the cooling of the inner oil commenced at a temperature little a above the maximum of the external oil. When the outer oil is at a higher temperature, at a certain point the heat begins to prevail, which is transmitted directly from the outer to the inner oil. An analogous phenomenon (to which Dr. Grassi refers) was that of some members of the Accademia del Cimento, who found that the water in a vessel surrounded by ice cools more rapidly if the ice be heated to accelerate fusion.—*Scientific American.*

IT appears that an unusual number of drift logs and stray timber have been scattered along the shores of the Georgian Bay this year, which have been collected by the Indians around Cape Hurd and Cape Croker, as well as by the whites in other districts. This property has been sold in many instances, by the parties finding it, to mill-owners at whatever price it would bring. A large quantity of these drift logs and timber were branded, and the real owners, or their agents, are claiming their property, which, of course, they have a right to, and will recover, those mill-owners who knowingly purchased property that did not belong to the sellers being compelled to make restitution to the owners. Unfortunately some of the owners neglected to mark their timber, and will, therefore, have to suffer the loss. Although stray logs and timber were formerly supposed to belong to the party on whose land they had drifted, it is not so now, for the willful concealment of drift timber and logs on either lake or river, or the effacing of any marks thereon and counterfeiting others instead, or refusing to deliver to the proper owners or their representatives, incurs a penalty not exceeding 400 dols. nor less than 20 dols. for each offense. The mill-owners who have been free purchasers of the branded logs and timber scattered along the Georgian Bay shores have been taught a salutary lesson, as they have sustained considerable losses through being compelled to deliver such purchases to the rightful owner.—*Industrial World.*

The Cause of Perpetual Snow.

Dr. James Croll, in the current number of the *American Journal of Science and Arts*, says the reason why snow at great elevations does not melt, but remains permanent, is owing to the fact that the heat received from the sun is thrown off into stellar space so rapidly by radiation and reflection, that the sun fails to raise the temperature of the snow to the melting point; the snow evaporates, but it does not melt. The summits of the Himalayas, for example, must receive more than ten times the amount of heat necessary to melt all the snow that falls on them, yet in spite of this the snow is not melted. Notwithstanding the strength of the sun and the dryness of the air at these altitudes, evaporation is insufficient to melt the snow. At low elevations, where the snowfall is probably greater, and the amount of heat received even less, the snow melts and disappears. This, Dr. Croll believes, must be attributed to the influence of aqueous vapor. At high elevations the air is dry and allows the heat radiated from the snow to pass into space, but at low elevations a very considerable amount of the heat radiated from the snow is absorbed by the aqueous vapor in the atmosphere. A considerable portion of the heat thus absorbed is radiated back on the snow, and, being of the same quality as that which the snow itself radiates, is for that reason absorbed by the latter. The consequence is that the heat thus absorbed accumulates in the snow till this is melted. Were the amount of aqueous vapor possessed by the atmosphere sufficiently diminished, perpetual snow would cover our globe down to the sea-shore. In a like manner the dryness of the air will, in a great measure, account for the present accumulation of snow and ice on Greenland and on the Antarctic Continent. These regions are completely covered with snow and ice, not because the quantity of snow falling on them is great, but because the quantity melted is small. And the reason why the snow does not melt is not because the amount of heat received during the year is not equal to the work of melting the ice, but mainly because of the dryness of the air, the snow is prevented from rising to the melting point. In places like Fuego and South Georgia, where the snowfall is considerable, perennial snow and ice are produced by diametrically opposite means, namely, by the sun's heat being cut off by clouds and dense fogs. In the first place, the upper surfaces of the clouds act as reflectors, throwing back the sun's rays into stellar space; and in the second place, of the heat which the clouds and fogs absorb, more than one-half is not radiated downward on the snow, but upward into space. And the comparatively small portion of heat which manages to reach the ground and be available in melting the snow is insufficient to clear off the winter's accumulation.

Learning Versus Common Sense.

Democritus long ago drew an emphatic distinction between learning and wisdom. Learning consists of knowledge acquired mainly from books, and often its possessor is developed by its acquisition only in his perceptive and retentive faculties. Though his memory may be a vast store-house of useful facts and brilliant second-hand ideas, yet, owing to a judgment originally weak and only partially trained to discriminate, he may be the most inconsequent and uncertain of reasoners. Wisdom, on the contrary, is the outgrowth of native sagacity, sound judgment, wary discretion—in a word, of good common sense, and yet of common sense acting under the enlightenment of more or less knowledge. Thus wisdom makes a man a true seer. He not only sees and grasps the best means to accomplish an end, but he instantly sees and selects the highest and best ends as the objects of his aim and life. Regarding learning and knowledge as the same thing, we may conclude with Cowper that

> Knowledge and wisdom, far from being one,
> Have oftimes no connection.

The paradox is, therefore, not unfrequently met of learned physicians who are destitute of skill as practitioners, of learned orators who are wretched statesmen, of learned linguists who are little better than fools, and finally of learned theologians who are the worst possible interpreters of the oracles of God.—*Christian at Work.*

Bay Windows.

A recent English decision (in the absence of any decision in this country upon the subject) will be of interest to residents in cities and towns who wish to put out oriel windows. A statute provided that "no projection of any kind shall be made in front of any building, over or upon the pavement of any street," with exceptions for shop-fronts, doorways, cornices, and pilasters under certain conditions. The section immediately preceding prohibited the discharge of water, steam, and smoke upon the footways or into the street, and provided for covered openings in or into the footways. It was held that the words "over or" only included such projections as would be an obstruction to foot passengers, and did not include projections all the way up a house. On the trial it was proved that the projection complained of was an oriel window, of stone work, which measured from the bottom to the top 11 feet, and projected over the footpath 2 feet 6 inches, and that the distance between the lowest part of the window and the footpath was 14 to 15 feet, and that such oriel window was not in the nature of a shop-front, doorway, cornice, or pilaster, and also that the land over which the window projected was, to the extent of 2 feet 6 inches, part of the public highway, being, in fact, the foot pavement of the street. It was, however, proved to the magistrate that the window was not a nuisance or obstruction, except only so far as any such projection necessarily interferes with the access of light and air to the street, and with the regularity of the line of buildings in the street, and that it did not interfere with the free use of the foot-path.

The Court said: "It is contended that the words 'over or' upon the pavement apply to any projection in any building, however high. If that construction is right, it would prevent the owner of a private house from having a balcony, verandah, or other harmless projection, if it projected beyond the vertical line. We are persuaded, looking at the act, that this was not its intention. The object of the string of sections relating to foot-ways was to keep them clear for foot passengers, and of the words 'over or' was to meet the case of a projection not actually touching the foot-path, but at the same time an obstruction to foot passengers. Therefore, the words referring to shop-fronts, etc. are inserted to except them, under certain conditions, from this section. If the intention had been to prevent projections all the way up a house, we should not have expected to have found the exceptions relating to *facias*. We are, therefore, of the opinion that these sections are not intended to preserve the free passage of air, but only the free passage of foot passengers."—*Builder and Woodworker.*

The Habit of Self-Control.

If there is one habit which, above all others, is deserving of cultivation, it is that of *self-control*. In fact it includes so much that is of value and importance in life, that it may almost be said that, in proportion to its power, does the man obtain his manhood and the woman her womanhood. The ability to identify self with the highest parts of our nature, and to bring all the lower parts into subjection, or rather to draw them all upward in harmony with the best that we know, is the one central power which supplies vitality to all the rest. How to develop this in the child may well absorb the energy of every parent; how to cultivate it in himself may well employ the wisdom and enthusiasm of every youth. Yet it is no mysterious or complicated path that leads to this goal. The habit of self-control is but the accumulation of continued acts of self-denial for a worthy object; it is but the repeated authority of the reason over the impulses, of the judgment over the inclinations, of the sense of duty over the desires. He who has acquired this habit, who can govern himself intelligently, without painful effort, and without any fear of revolt from his appetites and passions, has within him the source of all real power and of all true happiness. The force and energy which he has put forth day by day, and hour by hour, is not exhausted, nor even diminished; on the contrary it has increased by use, and has become stronger and keener by exercise; and, although it has already completed its work in the past, it is still his well-tried, true and powerful weapon for future conflicts in higher regions.—*Philadelphia Public Ledger.*

The Shingling Question.

It is rather amusing to one whose experience is more than local, to read the questions and answers appearing in various journals in reference to what constitutes a good day's work at shingling. Many unwise and unintelligent discussions arise from the diversity of answers given and opinions expressed; while the fact is, that no general answer can be framed which will apply to all sections of country—for the reason that shingles, like nearly all else used in the erection of buildings, possess special characteristics within certain naturally prescribed limits. The man who might perchance "lay" 2,500, or even 3,000, of California's soft redwood shingles within ten hours, would find himself loser upon a bet to lay 1,500 Eastern cypress shingles—or in some cases 1,000—fully half an inch thick, within the same number of hours. There is, also, a material difference whether six-penny or four-penny nails are used, and whether there is to be *one* or *two* nails driven in each and every shingle, or on an average, two nails to each *three* shingles. Again, it makes quite a difference whether the shingles are made of soft redwood, the only shingle now used in San Francisco, or sugar-pine, or white fir, qualities more common in other parts of the Pacific coast. Either of these kinds, compared with those made of harder wood in other States, and much thicker, requiring six-penny nails, bear no comparison. And the man who glories, as some do, over the feat of laying 2,500 or 3,000 redwood shingles, performs no better nor more noteworthy day's work than do other men who enjoy a sense of pride at having laid 1,000 of a heavier and more difficult kind to lay.

An Auger which Bores Square Holes.

To send a verdant youngster in search of a drill wherewith to make a square hole, is one of those time-honored workshop jokes, the freshness and originality of which is perennial with succeeding generations of perpetrators. But the laugh is now over, or at least it is on the side of the victim; for, incredible as it may appear, this apparent impossibility has been accomplished, and in a way so simple and so easy, that anyone may prove the fact for himself. As may be supposed, the invention excited more genuine astonishment among the mechanics gathered at the Exposition than any of the other wonders there displayed. There was a constant crowd surrounding the inventor, watching him bore hole after hole square, and puzzling over the very simplicity of the provokingly simple solution of the problem.

All that is required is an ordinary hand-drill stock. A stationary one, with a chuck below for holding the work, the inventor, Mr. Julius Hall, of London, uses; but he says a common brace will answer—"Anything, in fact, will do that will properly hold the drill." The tool itself is the usual form of three-square drill, so that it will be seen that no special apparatus at all is required. Clamp or chuck this drill in its holder so that "*it will wabble*," and you have the whole secret. Instead of making a round hole—as it undoubtedly will if tightly grasped—when *loosely held* it produces a square one. Why it should act thus is at first, to all appearances, an impenetrable paradox, and even after the *rationale* is discovered, it scarcely seems quite clear.

Hollow Ground Razors.

It is not long since it was confidently asserted that, even if the required quality of steel could be produced here, the United States could never compete with England in the manufacture of razors and other fine cutlery, owing to the excessive cost of grinding and finishing. Like a good many other "insuperable" obstacles to American success in the arts, this seems to have been pretty well overcome, since large quantities of Sheffield razor "blanks" are now sent here expressly to be finished. It seems that the art of "hollow grinding," German style, requires a degree of skill a little beyond that of the Sheffield workmen. Accordingly Sheffield manufacturers have to pay double freight across the Atlantic to secure the fine finish to their razors that the trade now demands.—*Scientific American.*

A Model Foreman.

A man, to be an entire success as a foreman, must make up his mind to be virtually a student for life, and use every means within his power to acquire knowledge. The education of his heart should never be sacrificed to that of his head, but proper discretion should be observed in all cases. While the brain may be overworked by too close application to study, the health should be carefully considered, and the physical constitution kept up to the proper standard. A foreman should read upon chemistry, natural philosophy and the sciences in general. We would also recommend that he read other useful literature, such as histories, narratives, and especially study mechanical drawing, which is indispensable. This course will develop the perceptive faculties, as they are called. He will not discharge a good workman for a slight offense and retain the poorest man. A good foreman, instead of giving his orders to a man verbally and imperfectly, will always carry a sketch-block or pad in his pocket, and where drawings are not used, will give his orders upon paper, together with a rough pencil sketch, if required. He should require the workmen to file away those orders, thus putting him in possession of the necessary evidence to defend himself in case there should be any fault with the work when completed.

A foreman should realize that his workmen are entitled to his respect, and he should conduct himself in such a manner that when he moves about among his men they will feel in duty bound to show him all courtesy that pertains to his position. His personal habits should be such as may, with profit, be imitated by every man in the shop. If a workman gets into trouble over a piece of work, a kind and sympathetic foreman will always help such a person out of his difficulty.

It is wise for a foreman to use only the best language toward his men, for the use of profanity not only creates an enmity between the foreman and the workmen, but also destroys the ambition and interest which the latter should always manifest in their work.

A foreman should be systematic, and whenever a standard or a certain routine can be applied to any work, it should be done. Tools, instead of being left scattered over the floor, should each have a particular place. Thus, both the foreman and workmen are saved the aggravating annoyance of searching for them.

When a piece of work is given to a mechanic he should always be allowed to finish it, for one of the most disagreeable things, and of the most humiliating to the workman, is to commence a piece of work and then have the foreman take it to some one else to finish.

Finally, a model foreman should endeavor to make himself so useful to his employers that they cannot well do without him, taking the same interest in managing the shop, and studying economy with as much care, as if his own capital were invested in the business. The manufacturing world are looking for artisans of this kind, and any person who has followed the opposite plan will, by adopting the principles herewith outlined, be agreeably surprised in a short time to find that he can make progress with so much greater satisfaction to himself than ever before.—*Exchange.*

Our Illustrations.

We present, in this issue, the design and plans for a private residence now in course of erection on Pine street, west of Octavia street, owned by Capt. Thomas G. Taylor. The foundation, and entire walls of basement or cellar, are of brick, the walls being 13 inches thick, and 10 feet high. This gives a very fine cellar under the whole building, containing laundry, "man's room," water closet, play-room, etc. The two finished stories are fully explained by the plans. The attic has a height of about seven feet at the side walls, and with the pitch of roof, provides for a story of ten feet at the higher parts. There will be two bed-rooms, tank room, and trunk room, in the rear portion of attic, leaving the space over full size of the two parlors and main hall in one apartment, which can be used as billiard or play-rooms. The finish of the building will be of white cedar; and the total cost of building, stable, and fence work, will not exceed $10,000. But these figures must not be accepted as an unvarying criterion as to the cost of buildings of its size, as it is possible to diminish the amount by certain omissions, and to increase it three-fold, if desired, by the use of more costly details, and finishes generally.

The other plans represent two tenement houses, with a frontage of 15 feet each, now in course of erection on Ellis street, west of Laguna, owned by H. Rothschild, Esq. They will cost, complete, for the two houses, about $4,200.

The Law of Window-Lights.

When can a man lawfully shut off the light from his neighbor's windows?

There has been a great deal of litigation, both in England and the United States, on the subject of window-lights, and the right of one property-owner to secure unobstructed light and air over the property of another. The general rule in England has been, that where light and air have been thus enjoyed for twenty years undisturbed, a right to their further enjoyment has been acquired and cannot be taken away. Yet there is an old English case where the judges held that if two men own two parcels of land adjoining, and one of them build a house upon his line, looking into the other's land, and this house continues thus for thirty or forty years, yet the other may, upon his own land, lawfully erect a house or other thing over and against the other's lights and windows, and the other can have no cause of action, because "it was his folly to build his house so near to another's land."

Of course, if land has been sold at any time reserving rights to light and air over adjacent property, then under control of the one who made the sale, the right to light and air over that property may be maintained. In some cases the courts have been called upon to determine such rights where adjacent lots belonging to the same owner were sold to different parties within five minutes. The English doctrine of the acquirement to light and air over another's land, by means of undisturbed enjoyment for twenty years or more, has not been recognized in this country in most of the States. In New York, Massachusetts, South Carolina, Maine, Maryland, Pennsylvania, Alabama, and Connecticut, the English doctrine has been discarded; but in Illinois, New Jersey, and Louisiana it has been maintained.

A leading case in New York is that of Parker vs. Foote, where the Court held that no action could be maintained against an owner for taking light and air from another's land, and the Court said: "The party has no remedy but to build on adjoining lands, opposite the offensive window. There is no principal upon which the modern English doctrine upon the subject of lights can be supported. It may do well enough in England, but it cannot be applied in the growing cities of this country without working the most mischievous consequences."

In Tyler's "Law of Boundaries, Fences, and Window-lights" there is much space given to this interesting subject, and many cases are cited. Summing up the results of it all, the author says:

"The authorities clearly settle the proposition that where the owners of two properties, one of which has enjoyed a continuous right to window-lights over the other, disposes of the window property which has enjoyed that right, there is an implied grant to him that a right to the window-lights shall be enjoyed therewith. So that if he parts with the tenement which has enjoyed the right to window-lights over another property, he, and consequently those claiming under him, are bound by the implied grant and right."

Judge Cowen, in a case in the Supreme Court of the State of New York, in 1855, gave his opinion that "the person who makes a window in his house which overlooks the property of a neighbor, does an act which he strictly has no right to do. He enjoys an easement of his neighbor's property which in time may ripen into a right. But before sufficient time has elapsed to raise the presumption of a grant, he has no right."

In another case decided in the Supreme Court in 1856, it was held: "Darkening another's windows, or depriving him of a prospect by building on one's own land, where no right to light unobstructed has been acquired by grant or prescription, invades no legal right." The courts have gone very far in enforcing a right to light and air over another's land, where proof is given that such right has been granted for a consideration. Owners have not only thus been prevented from building above a certain height, but have even been prevented from building on their own land at all. But in the case of independent owners of land, most of the courts of this country will uphold a man in building on his own land, to the exclusion of light and air from his neighbor's dwelling, unless the right to such light and air has been acquired in some way.—*Engineering News.*

The Use of Wood Screws.

At a recent meeting of the Polytechnic Club, the subject of wood screws was brought up for discussion, and a considerable number of interesting facts were presented. Some of the speakers claimed that an ordinary wood screw had nearly the same hold on wood when if driven nearly home with a hammer and then given a few turns with the screw driver, as it would have driven all the way with the screw driver. One builder, doing a large business in both New York and Brooklyn, said that they held just as well when set in this manner. This is a common opinion among builders who work with a small margin of profit and look out for every point at which a penny can be saved. Doubtless the cheapness of the operations has much to do with forming their opinions. When a screw is driven into the soft wood a distance equal to the plain part of the shank there is little injury, though the fiber of the wood is undoubtedly very much bruised around the screw, and the job is not so tight as it would be had a hole been bored for the screw. One of the members of the Polytechnic Club made tests, and found that it took 28 pounds to draw a screw which had been nearly set home with a hammer, and nearly 52 lbs. for its mate which was driven all the way by a screw driver. This would seem quite conclusive. The fact seems to be that to get the greatest possible resistance from a screw driven in hard wood, the hole to receive the plain shank must be a tight fit. For the thread part, the hole should be smaller and just the size of the "wire," leaving the thread of the screw to cut its own way into the solid wood. In soft wood probably the greatest resistance can be got by making the hole the size of the wire for its whole depth, and allowing the wire of the screw to expand the outer portion of the hole. Some people, however, claim that in soft woods, such as pine, the best way is to merely enter the screw with a small brad-awl hole, and then allow it to force its way into the wood. We have seen work put together with screws which were driven all the whole distance with the hammer. We think the value of such work is demonstrated when an attempt is made to take out a screw thus driven with a nail puller. A great deal is said about the value of locking the grain of the wood with the projections of the screw. Practically we think that this does more harm than good, by completely destroying the tenacity of the wood for a considerable distance around the screw. We should consider the barb nail vastly superior to any wood screw we have ever seen, if the screw was to be driven with the hammer.

Where it is desired to set the screw in a plastered wall, or in mortar where no hold whatever can be obtained for the threads, a little plaster of Paris mixed and pushed into the hole, and the threads of the screw at the same time filled with plaster, will give a most excellent hold. We have sometimes drilled a hole in brickwork, filled it up in this way and inserted a screw, and found that we had as firm a hold as though the screw had been fastened in a piece of hard wood.—*Exchange.*

The Hinkle Elevator.

Mr. Philip Hinkle, of this city, has probably given closer personal attention to the invention, construction, and operation of elevators for buildings than any man on this coast. He has kept constantly in view the all-important points of safety, speed, simplicity, durability, and economy in maintenance, while at the same time, from close attention to details and improved machinery used in construction, he is enabled to produce them at low cost. He makes them for hydraulic hoist, belt power worm hoist, and hand power hoist. He adapts them for stores, dwellings, sidewalks, dumb-waiters, etc. Factory 116 and 118 Main street, San Francisco.

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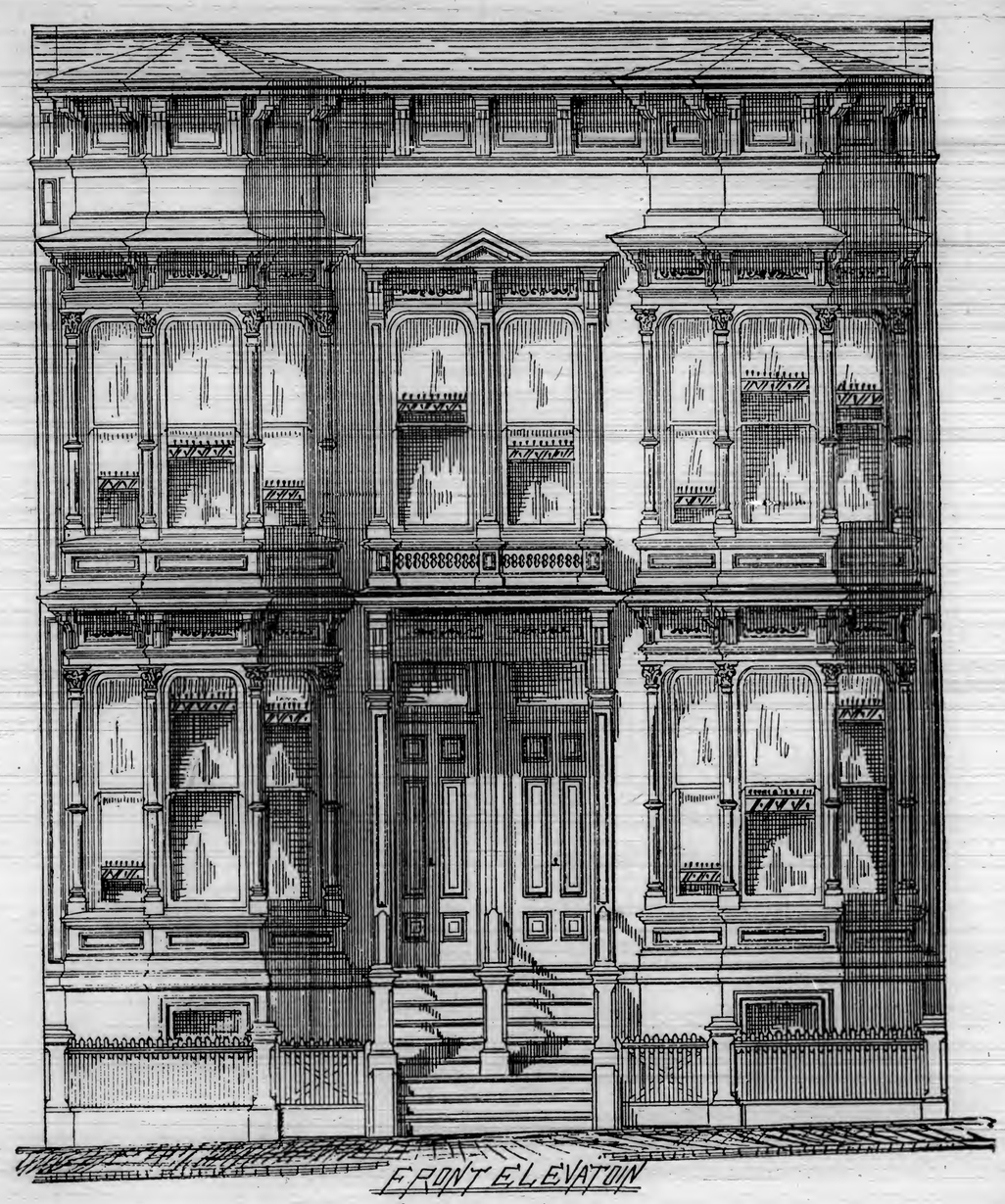

FRONT ELEVATION

ROYAL INSTITUTE OF BRITISH ARCHITECTS
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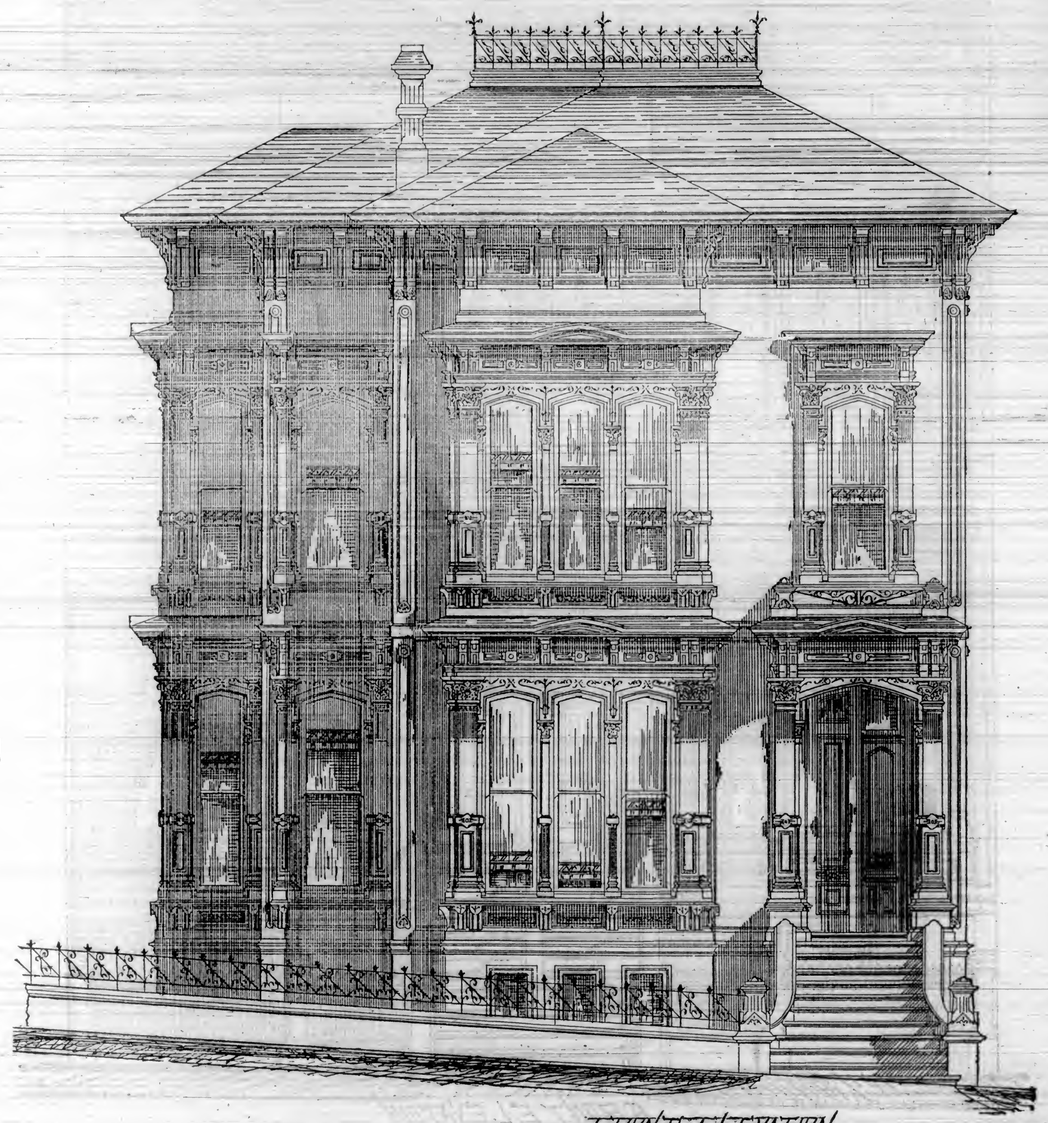

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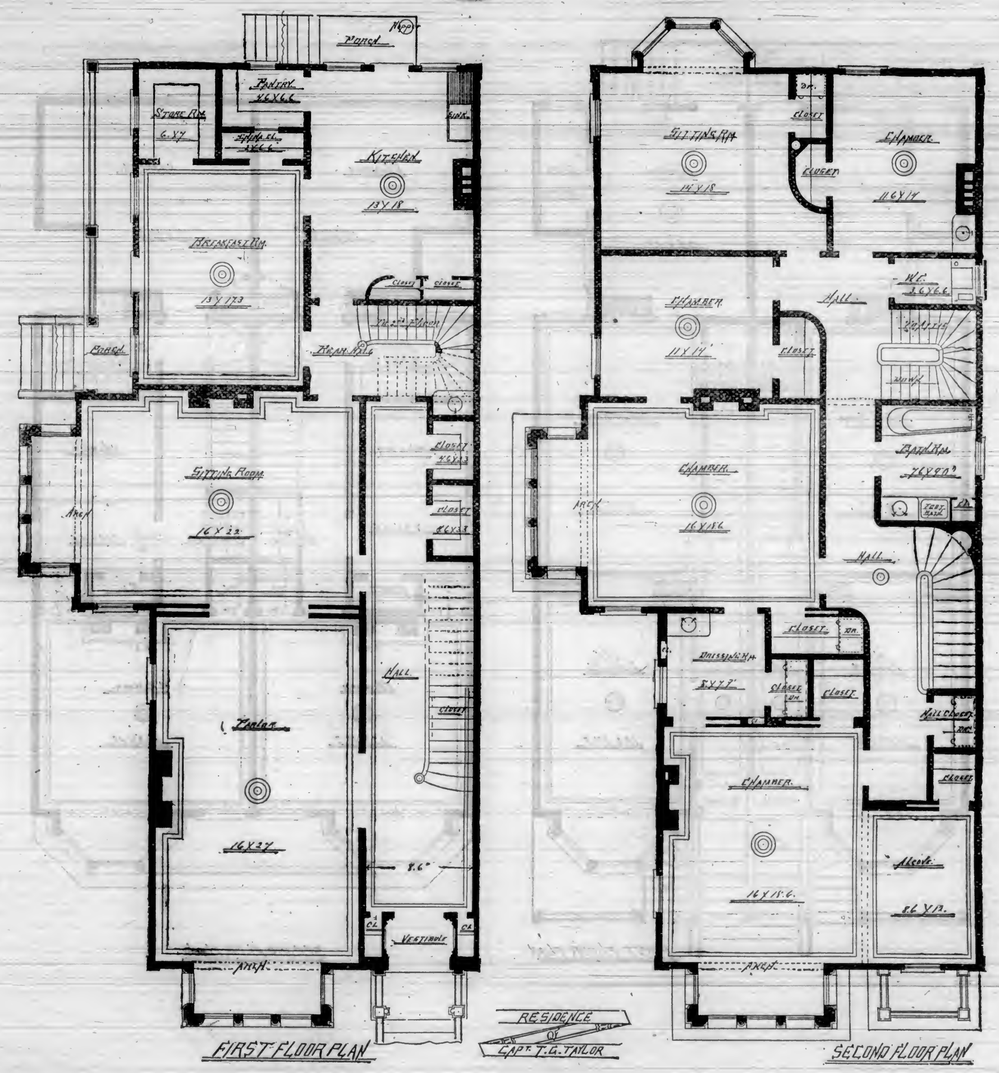
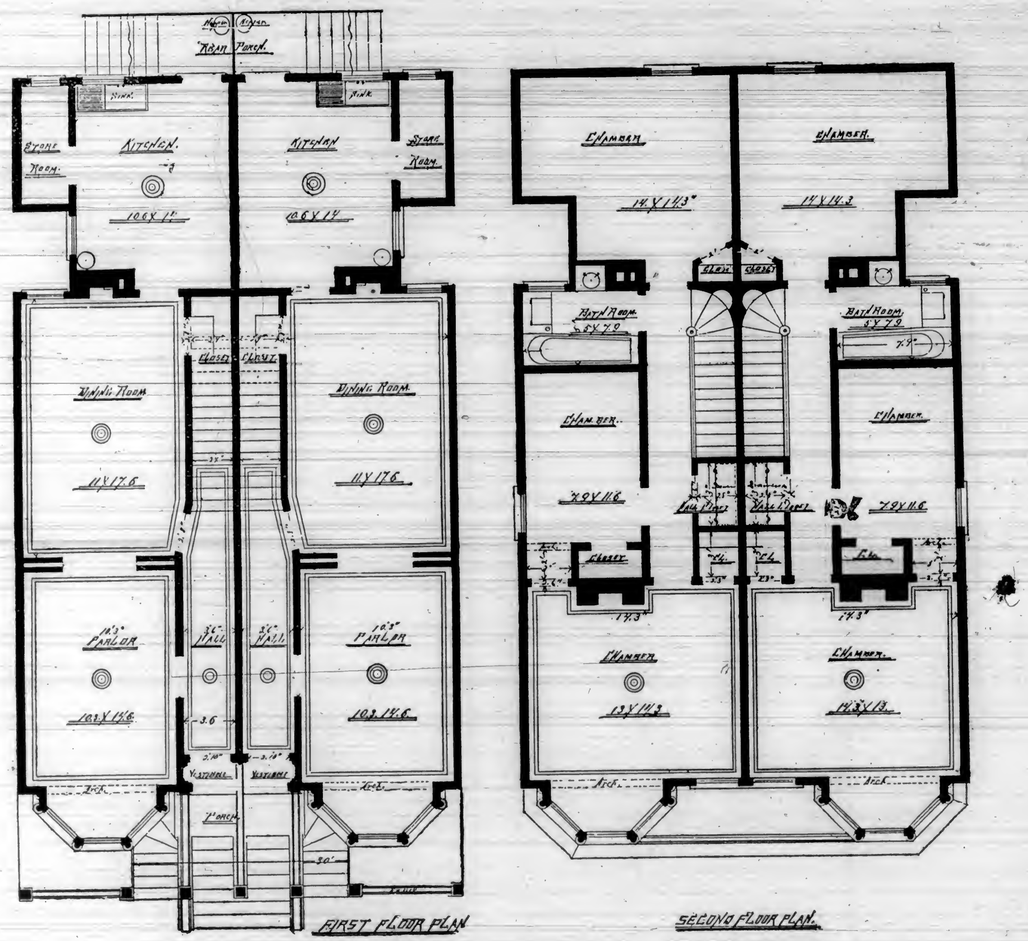


RESIDENCE OF CAPT. T. G. TAYLOR

FIRST FLOOR PLAN

SECOND FLOOR PLAN



EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal, and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.

G. H. W. OF THE CALIFORNIA ARCHITECT—Dear Chum—Given the diameter of a regular octagon, and the length of one of the sides, I want to know if there is a *rule* by which we can determine the length of the sides of *any* octagon, the diameter being given. There are a great many readers of your valuable paper in this section who would be glad to see this question answered.

"VALLEY HOME" CHUM, Sonoma County.

ANS.—There is a rule, and a very good and simple one. The following table will explain. An octagon 7 feet in diameter, each one of its sides will be 2 feet 10½ inches.

7 feet 6 inches	.....3 feet	1½	inch
8 " 0 "	.....3 "	3½	"
8 " 6 "	.....3 "	6¼	"
9 " 0 "	.....3 "	8½	"
9 " 6 "	.....3 "	11¼	"
9 " 9 "	.....4 "	¼	"
10 " 0 "	.....4 "	1½	"
10 " 6 "	.....4 "	4¼	"
11 " 0 "	.....4 "	6½	"
11 " 6 "	.....4 "	9¼	"
12 " 0 "	.....4 "	11½	"
12 " 6 "	.....5 "	2¼	"
13 " 0 "	.....5 "	4½	"
13 " 6 "	.....5 "	7¼	"
14 " 0 "	.....5 "	9½	"

Hence, knowing the diameter of an octagon and the length of one of its sides, to find the length of side of any octagon, add or subtract (as the case may be) to the known length two and one-half inches for each six inches of diameter.

Thus, octagon 7 ft. diameter, side 2 ft. 10½ in. What will be length of side of octagon 13 ft. 6 in. diameter? Difference between 7 ft. and 13 ft. 6 in. is 6 ft. 6 in. This difference multiplied by 2½ in. gives 2 ft. 8½ in.; add this to the 2 ft. 10½ in. and you have 5 ft. 7¼ in.; this is the same measurement as given in table.

In this connection, in answer to a friend from Benicia, I would say, that 7 to 17 on the square gives the angle of an octagon. G. H. W.

ED. ARCHITECT.—Won't you please solve a problem for us? We have worked a long time upon it, and cannot do it. It is this: If a certain number of workmen can do a piece of work in 25 days, in what time will 1⅔ of that number of men do a piece of work twice as great, supposing 2 of the first set can do as much work in an hour as 3 of the second set can do in 1½ hours, and that the second set work half as long each a day as the first set?

R. A., Sonoma.

ANS.—A curious question, but easily solved. It will just take 135 days.

ED. ARCHITECT.—The triangular gable of a certain building has a base of 44 ft. and an altitude of 18 ft. How many square feet of boards will cover the two gables? ACROSS THE BAY.

ANS.—792 square feet.

ED. ARCHITECT.—Why is it necessary to burn the natural limestone in order to procure pure lime?

ANS.—Because the limestone is always united to an acid. By subjecting it to a red heat it is freed from the acid, and the lime is left in a state of purity.

ED. ARCHITECT.—What is the exact hight of Mt. Diablo? OAKLAND.

ANS.—According to Professor Davidson, it is 3,843.63 ft. above tide level.

ED. ARCHITECT.—What do you mean when you say, "Hit a nail square on the head"? INQUIRER, Stockton.

ANS.—Try it on your finger-nail, and the question will be answered.

ED. ARCHITECT.—What is the cause of *dry rot* in timber? HOUSE-MOVER.

ANS.—We have not space in this issue to *thoroughly* answer this question.

ED. ARCHITECT.—What is the *very best way* of shingling a hip on a roof? CARPENTER WHO WANTS TO KNOW.

ANS.—Weave the shingles from either side of the roof, and as the shingling proceeds use a piece of sheet-lead between each course. This makes a *thoroughly* well-shingled hip.

ED. ARCHITECT.—Why should the term "penny" be applied to nails? HOW DO I KNOW, San Rafael.

ANS.—The term four-penny means four pounds to the 1,000 nails; or six-penny six pounds to the same, etc. When a thousand nails weigh less than one pound, they are called brads, tacks, etc., and are reckoned by ounces.

ED. ARCHITECT.—Won't you please answer a silly question? We—that is, a little company of girls—were reading your last paper, and we did not understand what *case*-hardening *exactly* was. What is a hard case?

ANS.—The shell of a tortoise.

ED. ARCHITECT.—Why is it that when nails are put in tin on a roof, and then soldered over, that I have generally found *leaks* to come from where the nails were driven? HOUSEHOLDER, S. F.

ANS.—It is entirely owing to the fact that heat *expands* and cold *contracts;* and in so doing the tin is torn away from the nail, leaving a *check* or *crack*, through which the water may run.

ED. ARCHITECT.—The sound of the church bells Sunday morning was the cause of me asking the following question: When and where was cast the largest bell in the world, and its weight?

ANS.—In 1653, by order of the Empress Anne, at Moscow, in Russia. Its weight was 443,772 pounds. The next largest is also at Moscow, weight 141,000. That at Pekin, 139,000; Vienna, 40,000; "Big Ben," 31,000; Montreal, 29,000; Cologne, 25,000; Rome, 19,000; Antwerp, 16,000; St. Pauls, London, 13,000.

ED. ARCHITECT.—Will you please tell us how to make a *strong* mucilage that will hold pieces of wood together, as we do not like the smell of glue. YOUNG INDUSTRIAL COMPANY.

ANS.—Take 8½ oz. *strong* gum arabic solution, and add 30 grains sulphate of aluminum, dissolved in ⅝ oz. of water.

IRON is very widely disseminated on the surface of the earth, and forms part of almost every substance—animal, vegetable, or mineral—with which we have to do. Few rocks, and perhaps no soils, are without it. It is present in water, and even in the air. It is associated with various elements in definite proportions, and is recognized in others by some of its properties, among which the color of its oxide is not the least striking. Abundant as the metal is in a manufactured state, there are but few specimens of native iron known, except perhaps those which have fallen to earth as wandering fragments of matter coming within the sphere of earth's attraction.

Take Good Care of the Little Ones.

Practical mothers learn much by their experience with the little bodies entrusted to their care. Some of the common-sense facts in the physical culture of these little ones, known to the more experienced mothers, may not come amiss to those who have had but little care of children. The foundation must be well laid to insure healthy and happy children. The child must be well slept, well aired, well fed, and well bathed. By a thorough understanding and practice of these four simple rules, much of the physical, mental, and moral suffering in life would be avoided by parent as well as child. If a healthy child (and a delicate one proportionately) is regularly put to bed about dark, in a quiet, well-ventilated, or even cold room, after a supper of plain food, it will naturally awake at daybreak, good-natured, with a keen appetite for a wholesome breakfast. Nutritious, plain food, with no candy or stimulants, and free bathing, help the system to ward off many prevalent children's ailments, and to bear with much less danger the few that must necessarily come to the majority of the little ones. The child that is given just a little confectionery, or any unsuitable food, then rocked to sleep, should cause no surprise at waking peevish and feverish. It is simply the result of imaginary affection and want of knowledge on the part of the one in charge. It will certainly pay in the end to search diligently for the cause, when a little child is proverbially cross.—*Medico-Literary Journal.*

THE LAW OF MUTUAL HELP.—At the Congress of Russian Naturalists, held in January last, Prof. Kessler delivered an address on the law of mutual help, which, he urged, was entitled to a place by the side of Darwin's law of the struggle for existence. Having given a brief sketch of the theory of the struggle, Prof. Kessler remarked that it did not play the only part in organic development. By the operation of the reproductive instinct, there was developed in the different animal races a strong inclination for a closer association of the sexes, as well among individuals as in the whole group, under which the members of a society, of the whole species or family to which they belonged, were impelled to assist each other in the struggle for existence. He had observed numerous instances in which, after the death of the male, the female died, and conversely, or parents with the greatest self-denial sacrificed themselves for the protection of their young. All such examples showed that the reproductive instinct bound groups of related animals to each other through the law he had enunciated. The principle was not limited to sexual association, but was exhibited wherever mutual help appeared to be necessary. As an example, the case was cited of a group of beetles which would combine their forces with severe exertion to drag away a dead mouse. Further, ants and bees illustrate the operation of the law in a high degree. The principle is developed with especial prominence in mankind. Only by the most powerful co-operation could men have succeeded in reaching the degree of civilization which the race has attained. —*Popular Science Monthly.*

PENAL SENTENCE FOR INJURING A TREE ON STEPHEN'S GREEN, DUBLIN.—(From our correspondent).—At the Southern Divisional police court here, two brothers, Richard and John Coyle, laborers, have been charged with having on Sunday last maliciously barked and otherwise damaged a young tree in Stephen's Green. This green has recently been purchased, planted, highly ornamented, and opened to the public by the munificence of Lord Ardilaun. A police-constable stated that he took the prisoners into custody for stripping the bark from a tree, and for endeavoring to pull the tree out of the ground. He saw one of them catch hold of the stake to which the young tree was tied for support, and swing by it. The other picked the bark with his nails, and, when he had loosened it, he pulled a strip off. Mr. W. Burke, superintendent of the green, said the tree referred to was one of rare species, procured by Lord Ardilaun himself. The park bailiff estimated the damage done to the tree at five shillings. One of the accused said that he and his brother were rushing across the green, and that to prevent themselves from falling they staggered against the tree. The magistrate sentenced each to two months' imprisonment, with hard labor.—*Timber Trades Journal, London.*

Sanitary Inspection of Dwellings.

The following details of the discussion of this subject at a recent conference of the London Society of Arts, referred to in our last issue, will be of interest. The gist of the remarks is contained in the italicized sentences.

Mr. Cresswell opened the discussion by proposing a resolution, "That it is expedient that the Metropolitan Board of Works within the metropolis, and the County Board within each county, should be empowered by the Legislature to make provision for the inspection and sanitary classification of dwellings, upon application being made by the owners thereof; and to grant certificates of healthworthiness in different categories, for terms of years." Mr. Crosswell argued that such inspection should be a public charge to secure confidence and to prevent possibility of collusion; and that in time the same repute would attach to such a sanitary certificate as is attached to a certificate of Lloyd's, which was accepted throughout the whole civilized world as an indisputable authority.

Dr. Wright, of Cheltenham, remarked upon the increased interest which householders, especially timid and nervous people, were taking in the sanitary state of their house property. The discussions of the past few years had awakened public attention and taught people the alphabet of sanitary science, and they were now beginning to spell out the words for themselves. The important question came home to everyone—"is the house I am about to take healthy or otherwise?" And it is not an easy question to answer. He thought it impracticable to certify to the good condition of any house "for terms of years," as it was impossible to guard against deterioration of workmanship and materials. When a person wanted his house inspected he referred them to a sanitary engineer. Sometimes when the reports were unfavorable "there was a threatened action for damages against the man who had spoken the truth."

Lord Alfred Churchill thought that the healthworthiness of a house depended on its drainage, and the certificate should be that the house was examined at such a date, the drains were laid according to the most scientific methods and calculated to last such a time; not giving any certificate of health-worthiness, because that was the natural result of good drainage. There should also be attached to each certificate a complete drawing of the form in which the drains were constructed, in the same way as an outline of the property was generally shown on the deed of conveyance.

In speaking of the difficulty of dealing with badly-built houses, Mr. H. H. Collins pointed out that the Metropolitan Board labored long and hard to obtain powers to deal with the question, and prepared such a measure as would have exterminated the art of Jerry building, but "there were so many objections raised and selfish interests alarmed," that the Board only succeeded in getting power to order proper foundations and damp-proof courses, "and therein all the sanitary by-laws of the Board of Works began and ended," beyond a definition of what mortar is. If owners of property request such an inspection and certification they should pay for it. There was nothing to prevent them obtaining either without government assistance.

Mr. Collins concluded that the only way to obtain healthful dwellings was to educate the public mind to appreciate *the necessity of seeing for themselves that their houses were fit to live in, and not to die in*, and then they would avail themselves of the professional assistance which was open to them.

Mr. Wakefield said it would not suffice to examine house drainage alone, and as an illustration of illness arising from a cause other than bad drainage, mentioned a first-class school attended by the children of noblemen, where typhoid fever broke out again and again. Nothing wrong could be discovered in the sewers; but on examining the walls it was found that *forty* papers had been pasted one upon the top of another, and, in fact, two large wagon loads of old paper were taken away.

Mr. Lovegrove wanted a more thorough supervision during the progress of the works, for he has no faith in any certificate. He wanted to see a better class of workmen engaged in house building, and preferred to depend more on the hand that works than upon occasional overlooking. He wanted drains laid by educated workmen.

Captan Galton thought it very undesirable to pass any resolutions which would not be practical. It was desirable that houses should be constructed so as to insure their healthiness; but he had very grave doubt as to how far this mode of effecting that object was practicable. It went to the extent not merely of the drains, but of the whole sanitary character of the houses; it is included in the nature of the materials, the walls, the ventilation and the mode of constructing the basement, the means of saying that the house was not built upon a foundation which was in itself injurious to health, as the foundations of so many houses in London were. All these were points which, if you were to have certificates of healthiness of the dwelling, must be examined into by the authority which was to deal with it. It would be far wiser to pass a resolution that all plans of drains and of the sanitary appliances of dwellings, as well as of alterations, should be registered, where any person should be able to examine them. The arguments which had been adduced on this subject pointed really to *the necessity of an improved education of the whole nation in sanitary matters; as it was that only which would insure a healthy construction of houses.*

Mr. Rodgers Field thought that the resolution could not possibly work. It referred to old as well as new houses, but certificates could not be given for old houses. The amount of investigation required, if the certificate was to be worth anything, would be enormous, because in an old house you must examine everything, open everything, and search every thing, or you would be certain to miss something which was very faulty. With new houses it was different. Dr. Richardson has said: you wanted first of all a standard to work by; and at the present moment they had not got this in the metropolis. You might go with a scheme of sanitary arrangements for a house, proposing what every man who had studied the subject would agree was the right system, but the vestry would very likely think differently. The question of cutting off the house from the sewer by a ventilated trap or man-hole, was most important from a sanitary view; but when he proposed to do that, one of the West End London vestries said "No," and raised all sorts of difficulties. Until this state of things was remedied with the vestries, it was impossible to go any further. After some verbal alterations the resolution was adopted.—*Plumber and Sanitary Engineer.*

Bricks from Coal-Pit Refuse.

Everyone who has passed through a coal-mining district will have remarked the enormous accumulations of rubbish surrounding the mouth of each pit. The dust mounds of the estimable Mr. Boffin would be pigmies by the side of these gigantic heaps of "matter in the wrong place." Until lately science shook its head mournfully at the piles; rubbish they were, and rubbish they would remain. At last, however, the discovery was made that the shale, one of the ingredients, could be made to yield a large quantity of petroleum by a process of distillation; and although the industry has not made, we believe, much progress, shale is now recognized to have a certain value, if a small one. There still remained, however, the bulk of the deposits to be dealt with, consisting in the main of the hard clay—it seems half petrified—which comes up from the pits with the black diamonds. Human ingenuity accordingly next turned its attention to this refuse, and already something of a victory has been achieved over the stubborn substance. It seems to have suddenly occurred to some one who was inquiring into the subject that bricks are made of clay; why, then, should not this clay be converted into bricks? The thought struck him as so happy that he communicated it to the mining experts of the locality. Of course they ridiculed the idea as visionary; that is the general way with experts when new notions are placed before them. Fortunately the proprietors of a colliery that was greatly embarrassed with clay accumulations thought the idea might possibly have something in it. They accordingly had some experimental machinery made for disintegrating, pulverizing, kneading, and shaping the refuse, and in due course of time their courage was rewarded with a supply of excellent bricks, far superior in quality to those ordinarily sold in the market, and much lower in price. At present the machine manufactures a dozen and a half of bricks per minute; but there is, of course, no practical limit to the productive power of a big colliery, as the owners might set up as many machines as they thought fit. At the more extensive workings large quantities of bricks are required annually for repairs, new buildings, and lining the shafts, and this invention thus brings consumption and production into the closest alliance. But no difficulty would be found, apparently, in disposing of any surplus, as the bricks have already achieved such a reputation for themselves as insures a ready sale. We trust the discovery will in some slight measure compensate coal-owners for the exceptionally low price to which competition has forced down the commodity in which they deal.—*Globe.*

WE have been unable to find in any of the older text books any reference to the "Queen Anne Style" as now practiced. During the life of that esteemed lady (Queen Anne) the prevailing style of architecture was vastly different from that which now goes by her name, though it is generally conceded that her chief architect, the designer of Blenheim, Sir John Vanbrugh, inaugurated a purer and better style than was in vogue when he began work. This style consisted of an introduction of Dutch detail grafted on the Elizabethan stock, to which was added a sprinkling of the sturdy gothic. We fail to see, however, in any of the ancient examples of this reign, any of the spindles that are so conspicuous, and seem to be the trade-mark of the style that now bears the good queen's name. It seems to us that the present prevailing style, prefaced with royalty, would be more suitably named if dubbed the "American Renaissance."

We hear a great deal about the "Eastlake Style." What is it? Can any one tell? Chas. L. Eastlake is an English architect, who several years ago wrote a book entitled "Hints on Household Taste," in which he animadverts upon false construction, condemns veneering and frivolous ornamentation, and applauds the Gothic style. The book contains a few sketches of designs, none of which are conspicuous for either beauty or originality. We have reason to believe that Mr. Eastlake is guiltless of designing any single piece of work that bears his name, yet we hear every day of this or that piece of work being executed in the "Eastlake Style." Mr. Eastlake does not believe in "shams." He advocates honest work, and puts more stress on the manner of construction than on the style or character of the ornamentation; hence, in our opinion, all honestly-constructed work is in the "Eastlake Style." There is a great deal of furniture made at the present time and sold as "Eastlake" furniture that is as far removed from what he advocates as it is possible to conceive; the work is pleasing and pretty, however, and in many cases fairly put together, but why it should be called "Eastlake" we have never been able to discover, but we suppose it will answer its purpose as well under that name as any other. "What's in a name anyhow?"—*Builder and Wood Worker.*

PURE WATER.—It is the almost invariable custom to judge of water by the quantity of organic matter it contains, no matter what its origin, and a variation of two or three times a given amount is held to make the difference between a good and bad water. Professor Huxley gave it as his opinion, speaking as a biologist, "that water may be as pure as can be as regards chemical analysis, and yet as regards the human body be as deadly as prussic acid, and on the other hand may be chemically gross and yet do no harm to anyone." "I am aware," said he, "that chemists may consider this as a terrible conclusion, but it is true, and if the public are guided by percentages alone they may often be led astray. The real value of a determination of the quantity of organic impurity in a water is, that by it a very shrewd notion can be obtained as to what has had access to that water." However startling these statements may be to those who judge of the whole someness of a water by the amount of organic matter it may contain, we believe it to be none the less an accurate description of facts. It is within our knowledge that some of our most wholesome supplies sometimes contain an excess of organic matter, and that the waters which give rise to typhoid fever and other hardly less serious disorders are frequently just those which contain the least; the difference, of course, being that in the one case the organic matter is innocuous, in the other deadly.—*Nature.*

Philip Hinkle's Elevator.

One of the inventions in the late fair which attracted the greatest attention, and which was, at the same time, of the greatest immediate practical utility, was the Hinkle Elevator. It proved of the greatest service to the exhibitors, whose exhibits were transported with expedition; and having been placed at the free disposal of visitors, it was constantly besieged by weary crowds, who found it a delightful means of travel to and from the gallery. Mr. Hinkle's newly-patented safety-clutch attracts much close attention. This device is so skillfully and cunningly contrived, that, should a rope break, or any part of the machinery give way, the elevator is immediately arrested within a few inches from where it begins its rapid and perilous descent.

Mr. Hinkle deserves special credit for contributing to the comfort of the visitors. His well-directed enterprise brings forward to the attention of the people the most complete elevator now in existence, and doubtless, in due season, he will reap a rich and deserved reward from the public, who fully appreciate the excellence and safety of his improved device. A trial of the elevator was made, on which occasion a 2000-pound load was put on the cage, which was raised by the power, and the cross-head was then detached from the piston-rod where the strain is the greatest. It is at this point that the ordinary machinery has always given way, and caused the accidents to ordinary elevators. In this case the cage was held in the guides, showing no accident could occur.

Market Report.

GLASS.—A good subject for a debating club would be, "Is Competition the Life of Trade?" While we admit, as a rule, that an *honorable* strife for the control of any particular branch of industry may be all right, and inure to the benefit of the community, there is such a thing as carrying it too far, and honorable must have the emphatic prefix "*dis*" placed before it. A further discount of 10 per cent. has been made since our last issue, bringing glass down to a price where there is absolutely "nothing in it." Most sizes are abundant; we will except the small sizes of 21 oz.

PAINTS.—An active demand has tended to diminish the quantity on hand. From the numerous buildings that are in process of erection all over the State, we think that our manufacturers will be taxed to their utmost, in order to meet the increasing wants of our property-owners and mechanics.

LUMBER AND HARDWARE.—There has been a little change in the price of lumber. The table speaks for itself. No change in the prices of the different kinds of nails. Hardware is quiet at present, but all our dealers look forward to a booming market when the golden shekels shall have been gathered in by our farmers.

OREGON PINE.

Common Rough, up to 40 feet, per M feet		$20 00
" 40 to 50 " "		21 00
" 50 to 60 " "		22 00
" 60 to 70 " "		23 00
" 60 to 80 " "		24 00
Refuse Rough		16 00
Common Rough, sized with planer $2 additional on above rates, per M feet.		
No. 1 Flooring, 6 inches and over, and Stepping	per M feet	27 50
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring	per M feet	30 00
Rough Clear for flooring, $1 less than above rates, per M feet.		
Second quality Flooring and Stepping, per M feet		22 50
Ship Plank, rough	per M feet	25 00
" planed 1 side	"	28 00
" planed 2 sides	"	30 00
Deck Plank, rough	"	28 00
" dressed	"	32 50
Laths	per M	3 50

REDWOOD.

Rough Merchantable	per M feet	$20 00
" Refuse	"	16 00
Surface, No. 1	"	30 00
Surface, 1 x 8	"	30 00
" 1 x 6	"	28 00
" No. 2	"	22 50
Rustic, No. 1 1 x 8	"	28 00
" No. 2	"	25 00
" 1 x 10	"	30 00
Rustic, short, 8 to 10 feet	"	$25 00
" " under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
" " No. 2	"	20 00
" Beaded, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
Half-inch Surface	"	27 50
Pickets, fancy	"	20 00
" rough, pointed	"	16 00
Pickets, rough, square	per M feet	$14 00
Siding, ½-inch	"	20 00
Port Oxford White Cedar	per M feet	$30 00 to 45 00
Sugar Pine	"	30 00 to 50 00
R. W. sawed shingles	per M	2 00
Battens, ½-inch		75

HARDWARE AND NAILS.—We note the following prices:

10 to 60 pennies, are quoted at	$4 25
8 " " " "	4 50
6 " " " "	4 75
5 and 4 " " " "	5 00
4 and 5 pennies, brad heads at	5 50
6 " " " "	5 75
8 " " " "	5 50
10 and upward " " "	5 25
3 penny fines " "	7 75

LUMBER.

We are indebted to the *S. F. Journal of Commerce* for the following very full report of receipts and exports of lumber:

Receipts since our last—4,349,256 feet lumber, 2,816,000 shingles, 150,000 laths, 3,100 R. R. ties, 381 cords wood, 349,125 shakes, 3 bundles hoops.

Total receipts since January 1st:

Lumber, ft	123,357,519
Shingles, No	47,114,032
Laths, No	11,049,700
Wood, cds	16,713
Piles, ft	26,000
" No	3,065
Cedar, logs	2,476
" ft	72,980
Rosewood, logs	32
Shakes	1,142,625
Pickets, No	20,000
Hoops, bdls	7,136
Headings, bdls	58
Staves	12,299
" bdls	1,485
" crds	23
Railroad Ties	218,779
Posts	343,684
Sugar Pine, ft	1,409,000
Barrel St'k, pkgs	27,129½
Spars	90
Wool Slats	74,000
Stave-bolts	78,000
" cds	173½
Telegraph Poles	1,508

The market is quiet and steady. However, with restricted production, the stock on hand is not large.

Exports of lumber since August 1st.:

	Feet.	Value.
St Stephen, Liverpool	1,800	$ 360 00
Malola, Honolulu	10,100	402 32
Newbern, Mexico	31,984	596 11
Ella, Tahiti	19,237	421 20
Invincible, Liverpool	203	25 37
James Townsend, Mexico	50,796	814 00
Nereus, Queenstown	12,000	240 00
Eustace, Mexico	13,425	267 60
Harvester, Queenstown	21,000	430 00
City of Chester, Victoria	203	25 37
W. F. March, Ecuador	38,140	1,000 00
A. D. Snow, Liverpool	38,000	760 00
Eureka, Cork	26,000	520 00
La Mangarevienne, Mangar'va	30,000	700 00
Dakota, Victoria	372	51 65
Cumeria, Cork	15,000	300 00
Louisiana, Liverpool	20,000	400 00
Mariposa, Cork	13,000	260 00
Sheet-Anchor, Apia	120,000	1,555 00
C. O. Whitmore, Vladivostock	11,000	310 00
Eva H. Fisk, Guaymas	162,294	3,099 20
Astarte, Dublin	12,500	250 00
City of New York, Sydney	53,163	1,718 79
A. P. Jordan, Guayaquil	229,883	5,370 42
Total	930,100	$19,877 03

Exports of lumber since September 1st:

	Feet.	Value.
Percy Edward, Tahiti	5,000	$117 00
Eudora, Tahiti	4,100	81 00
Carrie Clark, Liverpool	25,000	500 00
Total	34,100	$698 00

We quote cargo rates—Pine—rough, $16 per M feet; No. 1 Flooring and Stepping, $24 50. Redwood—rough, $16; surfaced, $23. Retail rates—Pine—No. 1 Flooring and stepping, $30; rough, $20. Redwood—rough, $20; surfaced, $30. No. 1 Rustic, $30; Flooring, $27 50; tongued and grooved beaded, $27 50; Fancy Pickets, $20; Rough Pointed Pickets, $16; Rough Square Pickets, $14; Shingles, $2 per M.

CEMENT, PLASTER, LIME, ETC.—Total imports since January 1st: 48,727 bbls. 2,340 csks Cement, 103,280 Fire-brick, 2,500 bbls plaster.

Receipts of California Lime since our last: 3,845 bbls. Total since January 1st, 75,622 bbls.

The market is quiet and unchanged.

We quote Eastern Cement, Rosendale, $2 25@2 50; other, $2 12½; Portland Cement, $4 50@5 25 as to quality and brand. Plaster—Eastern, $3 25@3 50; do Golden Gate, $2 75@3 00; Lime, Santa Cruz and Sacramento, $—@1 50; Fire-brick, $35@40—jobbing at $40@50, as to brand. California brick—hard, $10@12; soft, $7@8; red, $9@10.

Building Intelligence.

Operations in building improvements, both in city and country, have been more active in the past thirty days than for any similar period for several years past. From present appearances, not only an active fall trade may be anticipated, but a decidedly lively winter may be confidently counted upon. From east, west, north, and south we have advices telling us that the merry sound of the hammer is heard in places that have known it not for a long while. We are glad to see that the dull monotony which has seemed to rule everywhere has been broken, and a right loyal, hearty break has it been. In parts of Napa, Sonoma, Calaveras, and other counties, building improvements are going ahead with a vim that puts one in mind of the palmy days of 1875. In this city, buildings are being erected in every direction. There is nothing that would give a stranger a better idea of the stability of our merchants and buildings, than to take a walk around our business streets, and see the number of buildings that have had, or are having an additional story added, as well as the new houses that are going up on every side. If further proof were wanted, a glance at our list of new buildings ought to satisfy the most skeptical. We have spent much time in preparing this list, and have endeavored to the best of our ability to have it perfect. We would again call the attention of professional brethren in the country to the fact, that they can materially help us by sending a list of the building improvements in their section of country, to this office.

SAN FRANCISCO.

Two-story frame, corner 27th and Howard. Owner, Mrs. Brown; contractor, J. L. Binet. Cost, $1,000.

Frame dwelling on corner Franklin and Turk. Owner, R. Kanzee; architect, A. Schroepffer; contractor, B. Dryer. Cost, $6,000.

Three-story and basement brick building on north side California, between Davis and Drumm. Owners, "Marvin" Estate; architect, Clinton Day; contractors, Cox & Hall. Cost, $28,500. This building takes the place of one of San Francisco's old landmarks.

Two two-story frame tenements on Ivy Avenue. Owner, Mrs. Reuter; contractor, P. A. Herman; architect, H. Geilfuss. Cost, $2,800.

Additions and alterations to dwelling, and erection of stable at 1815 O'Farrell street. Owner, Felix Uri; contractor, Henry Bode; architect, H. Geilfuss. Cost, $4,000.

One-story frame on Harrison, between 20th and 21st. Owner, John Tietjen; architect, H. Geilfuss; contractor, —— Myerholz. Cost, $1,700.

Three-story frame building, 35x77, two stores on first floor, on corner of Geary street and Martha Place. Owner, Chas. Scroth; architect, John Marquis; contractor, S. S. Emory. Cost, $12,000.

Four-story brick building, on northeast corner Stockton and Morton. Owner, Chas. Scroth; archi-

tect, John Marquis; contractor, J. W. Kinsman. Cost, $45,000.

One-story frame on corner of Pierce and California. Owner, Chas. Schroder; architect, John Marquis; contractor, Wm. Plunce. Cost, $500.

Two-story frame dwelling on north side of Bush, east of Octavia. Owner, H. Hinkle; day's work. Cost about $5,000.

Two-story frame dwelling on north side of Bush, between Webster and Buchanan. Owner, P. B. Ladd; architect, Jas. Gosling; contractor, T. J. Hamilton. Cost, ——.

Two-story frame building, with stores on corner of Ivy avenue and Octavia street. Contractor, T. J. Hamilton.

Two-story frame on west side of Steiner, north of Eddy. Architect, —— Townsend; contractor, S. M. Hill. Cost, $3,000.

Two-story dwelling and one-story shop on Hill, between Valencia and Guerrero. Owner, W. J. Ridgeway; contractor, Geo. Lee. Cost, $2,000.

Alterations of house on 9th, between Howard and Folsom. Owner, J. Buchanan; day's work. Cost about $800.

Store and six dwellings, two stories each, on corner of 9th and Folsom. Owner, Miss Caroline Hawes; contractor, S. Hatfield. Total cost about $12,000.

Two-story and basement, frame dwelling on Vallejo, near Laguna. Owner, Mr. Tilden; architects, Kenitzer & Raun; contractor, W. Plunce. Cost, $7,000.

Alteration of and additions to St. Luke's Church, on Pacific, between Polk street and Van Ness Avenue. Architect, H. D. Mitchell; contractors, Hodgkins & Hurlburt. Cost, $3,300.

Three three-story dwellings on Van Ness Avenue, between Bush and Pine. Owner, M. B. Levy; day's work. Cost, $21,000.

Three-story frame dwelling on south side of O'Farrell, east of Laguna. Owner, G. Balny; architect, Jules Godart; contractor, A. Krone. Cost, $4,000.

Cottage on southwest corner of Buchanan and O'Farrell. Erected by Mr. Wolf, at a cost of about $850.

Two-story frame dwelling on Jones, between Pacific and Jackson. Owner, W. S. Phelphs; architects, Percy & Hamilton; carpenter contractors, Gray & Lombard; brick work, Sandford & Lundborg. Total cost, about $5,400.

Two two-story and basement dwellings on California, between Fillmore and Steiner. Owner, W. Frost; architects, Taylor & Moore; contractor for carpenter work, H. Schulz. Cost, about $6,000.

One-story frame on Pine, between Webster and Fillmore. Owner, C. H. Dobson; contractor, J. Dougherty; architects, S. & J. C. Newsom. Cost, $2,000.

Two-story building with store on corner Turk and Larkin, one-story stable adjoining on Turk. Owners, Morehouse & Norton; contractor, Ed. Clark. Cost, $5,000.

Four two-story houses with basement on corner of Tyler and Franklin. Owner, J. S. Levy; architect, Wm. Mooser. Cost, $17,000.

Two two-story houses with stores on Geary, between Webster and Buchanan. Owner, D. Mendelsohn; architect, J. A. Remer; contractor, A. Walker. Cost, $6,000.

Three one-story frame buildings on 26th and Sanchez. Owner, G. Edwards; day's work. Cost, about $700 each.

Pastoral residence for Rev. J. F. Harrington, St. Francis Church, on Vallejo, between Dupont and Stockton. Architect, T. J. Welsh; carpenter work, J. L. Binet. Cost, $4,000.

Residence on Devisadero, between Fulton and Grove. Owner, J. McCormick; architect, T. J. Welsh; builder, J. L. Horton. Cost, $1,400.

Three-story brick building with basement on Main, between Mission and Howard. Owners, Holt Bros.; architect, —— French; day's work.

Three-story and basement frame dwelling on Montgomery avenue, between Union and Filbert streets. Owner, H. Holland; contractor, T. E. Pechfelder; architect, F. Hillert. Cost, $6,500.

Two-story frame building with stores on northwest corner of Green street and Montgomery avenue. Owner, R. Larrimore, Jr.; builder, R. Larrimore; day's work. Cost, when finished, about $7,500.

Two-story frame on east side of Stockton, between Union and Filbert. Owner, Frank Aicher; architect, —— Townsend; contractor, G. Schieble.

Additional story to building on northeast corner of Front and Market. Owner, Mr. Laviega; architects, Kenitzer & Raun; contractors, Mahoney Bros.; brick work, J. Haff. Cost, ——.

Two-story brick building with basement on corner of 3rd and Everett. Owner, Mrs. Malady; architect, Mr. McKidney; contractor, —— Grant. Cost, $8,750.

Two two-story frame dwellings with basement on Ellis, west of Buchanan. Owner, H. Rothschild; architects, Wolfe & Son; contractor, W. D. Clark. Total cost, $4,500.

Two-story and basement residence on southwest corner of 21st and Bartlett. Owner, W. C. Kessing; architects, Wolfe & Son; partly day's work. Cost, about $4,000.

Dwelling on Bush, near Fillmore. Owner, W. J. Gunn; architects, S. & J. C. Newson; contractor, —— Dougherty. Cost, ——.

Residence on corner Jones and Pacific. Owners, Phelphs Bros.; contractors, Gray & Lombard.

Dwelling on Liberty, near Valencia. Owner, —— Palmer; architect, —— Bayless.

Dwelling southeast corner Ivy Avenue and Franklin street. Owner, —— Silverburn; architect, P. J. O'Connor; contractor, P. Herman. Cost, $5,000.

Three-story frame building corner Sansome and Vallejo. Owner, —— Duffy; architect, Townsend.

Two-story frame on Harrison and 10th. Owner, —— Fitzgerald; contractor, J. Downey. Cost, about $5,000.

Building on Filbert, between Stockton and Dupont; Rocko & Co., contractors.

Two-story frame with mansard roof, on Vallejo, between Gough and Octavia. Owner, ——; architects, Kenitzer & Raun; contractor, Wm. Plunce. Cost, about $6,000.

Two-story frame on Lewis street. Contractors, Norton & Walker. Cost, about $3,000.

Two-story frame building on 21st street and Treat avenue. Contractors, Hodgkins and Hurlbut; architect, —— Hoagland. Cost, $3,000.

East of San Francisco.

OAKLAND.

Frame building for stores and rooms on corner 7th and Center. Architects, Babson & Seadler. Cost, about $2,000.

One-story six-room house on 21st, near Market. Owner, P. Heverin; architect, J. Wesley Newcum; contractors, McManus & Tuhig. Cost, $1,000.

One-story frame, six rooms, on San Pablo avenue, near Shell Mound Park. Owner, J. B. Baxter; architect, J. Wesley Newcum; contractors, Eckles & McMurphy. Cost, $1,450.

Building on corner of 12th and Broadway is having a new glass front put in. Owner, —— Coleman; wood work and painting contractor, —— Smith; architect, W. Kirk. Cost, $1,200.

Barn on Lake street, Owner, Geo. H. Wheaton; architect, Clinton Day; contractor, E. Child. Cost, $1,550.

One-story frame, five rooms, for Mr. John Hager. Architects, McDougall & Son; contractor, J. E. Benham. Cost, $1,500.

Two-story and basement for A. M. Benham. Architects, McDougall & Son; contractor, J. E. Benham. Cost, $4,000.

ALAMEDA.

One-story and basement, six-room house, on R. R. avenue, near Willow Station. Owner, C. T. Johns; architect, J. Wesley Newcum; contractor, J. C. Johnson. Cost, $1,010.

Cottage in process of erection on R. R. avenue, near Chesnut.

Cottage on Pacific avenue, near Chesnut street. Owner, Chas. Bender. Cost, $2,000.

CERES.

A warehouse 76x100 is in process of erection at this place.

SAN ANDREAS.

The warehouse at this place is being materially enlarged.

STOCKTON.

Large brick building on the Asylum Grounds. Owner, State of California; architects, Percy & Hamilton; contractors, Terrill & Slaven. Cost, $66,750.

WEST BERKELEY.

The Tontine Powder Works, a few miles above this place, are having a number of buildings erected. Plans are drawn for quite a number more. H. C. Macy, architect. Full report in next.

South of San Francisco.

SAN MATEO.

Stables, restaurant, saloon, etc., to be built on the site of the late fire in San Mateo. Owner, P. Byrnes; day's work. Cost about $10,000.

REDWOOD CITY.

Stable on the grounds of N. J. Britton. Architects, Clinton Day; contractors, Moore Bros. Cost, $3,200.

TWELVE-MILE FARM.

Two-story frame building. Owner, C. Ashton. Cost, $1,300.

North of San Francisco.

BENICIA.

Two-story frame dwelling. Owner, A. Goodyear; architects, Babson & Seadler; contractor, Chas. Ingersoll. Cost, $7,000.

HEALDSBURG.

Dwelling near town. Owner, Mr. Paxton. Done by days' work, at a cost of about $12,000. Mr. Peck, superintendent.

Dwelling for Mrs. White. Days's work. Cost, $3,000. Terry, superintendent.

Dwelling for Mrs. Huton. Days' work. Cost, $1,000. Charles, superintendent.

Dwelling for Mr. Lathrop. Days' work. Cost, $3,000. A. Phelphs, superintendent.

NAPA.

A great many improvements are being made in this section. Lack of time prevented us from getting full particulars. Mr. Schefler is erecting a building for a fine residence at St. Helena, Kenitzer & Raun, architects. Mr. A. Clark is putting up a residence four miles from Monticello. Cost, $12,000. Mr. Clark is having a two-story frame building erected, J. Marquis, architect; W. Hall, contractor. Cost, $14,000.

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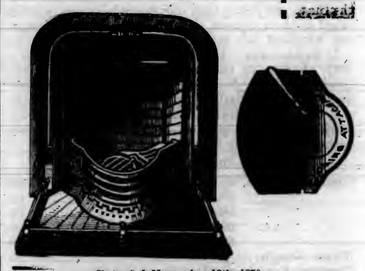

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The California Architect

—AND—

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager.

Sent to any part of the U. S., postage paid, at $1.50 *per annum, with extra cost of postage when sent to Foreign Countries.*

Entered at the Post Office at San Francisco, Cal., as second-class matter.

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and to our friends and well-wishers east of the Rocky Mountains, to assist by their subscriptions and personal influence in the permanent establishment of the FIRST AND ONLY ARCHITECTURAL JOURNAL ever published west of the great natural ridge which, to a certain extent, segregates California from the commonwealth of States.

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Industrious and competent canvassers will be able to Earn from $3 to $5, or more, per day. Send for Club Rate Circular.

Our Second Volume.

The first year of this journal's existence as a monthly publication, will end with its December number. Of its merits and defects thus far, our kind patrons are the judges. Its future is in our own hands. Every promise made concerning it has been faithfully observed, and we accept with sincere gratitude, the many hearty and generous expressions of approval which have come to us from all sources. Whatever of adverse opinions may have been entertained in any direction, none have reached us; while individual commendations have been liberally extended, and our journalistic friends, without an exception, have not only noticed us with favor, but in numerous instances indulged in lavish praise of our humble efforts.

Laboring as we have, under far greater disadvantages than perhaps any other permanent and successful journal ever issued, we are more than pleased with the result; and, guided by the experiences and lessons of the past, we can with full confidence assure our many patrons and friends that numerous valuable improvements will be introduced in volume number two, and that no effort nor expense will be spared to produce, from and after January next, a journal of comparative excellence with any other published. We therefore, at this early day, request each and every subscriber to be prepared to renew his subscription, and also to use his influence to increase our already gratifying subscription list. The greater the number of paying subscribers, the larger will be our resources and means of enlargement and improvement. Upon the latter we are fully determined, and hope that the THOUSANDS who have so heartily wished us success and expressed the opinion that JUST SUCH A JOURNAL IS GREATLY NEEDED IN CALIFORNIA, will demonstrate the sincerity of their declarations, by renewing their subscriptions and using their personal influence to secure us a large additional number of cash subscribers.

The greater cost of publication in San Francisco over like journals in the Eastern States, together with the increased outlays intended to be incurred in the issue of volume number two, will make it necessary to place the yearly subscription price at $2. But as we intend that at least some of the numbers *singly* shall be worth that sum to many, and the increase amounting to only a fraction over four cents per month, we hope that our patrons will cheerfully acquiesce in this necessary change in subscription cost, and that none will withhold renewal on that account. We will most certainly more than make up the difference in various ways.

SOLICITORS.—During the year several unprincipled frauds have collected money in the name of this journal. We caution all parties not to pay any money to any person whomsoever, representing themselves to be solicitors on our account, unless they exhibit the most conclusive evidence of their connection with this office, and furnish our printed form of receipt. All subscription amounts can be forwarded by postal money-order.

HOW TO SUBSCRIBE AND PAY.—City subscribers can either call personally at the office of publication, and leave name, address and money, or write name and address PLAINLY on postal card and forward by mail, and our office collector will call as directed and receive the money. Subscribers outside of San Francisco, will please remit by postal money-order, or

when impracticable to do so, send the money in two-cent postal stamps. In all cases the NAME AND ADDRESS SHOULD BE PLAINLY WRITTEN.

We again ask that our friends, and a generous public generally, will aid us by their subscriptions in establishing a journal such as it is our intention this SHALL be—one that will be a credit to the city of San Francisco and the Pacific Coast, as well as to its proprietors. *This being the only journal of its kind published west of the Rocky Mountains*, we ought to receive NOT LESS THAN 10,000 SUBSCRIBERS within these western confines, to which we shall certainly add 5,000 from beyond the great divide between the eastern and western slopes of our great country.

We now send this journal to regular paying subscribers in London, Ireland, Honolulu, Fiji Islands, the British Possessions, and to every State in the Union. Sample copies have also been sent by special personal-letter request, to Australia, Prussia, Paris, and other places. Our original matter has been freely copied in a large number of Eastern journals, and a prominent London journal of recent date contained our entire three-column criticism of the "*copyrighted plans*," with seeming gratification at the exposures therein contained; proving our early predictions correct, that this journal was destined to exert an influence which would reach to all parts of the civilized world. This it has already accomplished to a certain extent, and with its daily increasing and widely extending circulation, it is a reasonable conclusion that in time its influence will increase in extent and magnitude.

A Pleasing Reflection.

In times past, California was dependent upon Eastern cities and foreign countries for nearly everything requiring skill and neat workmanship in their production. But time has wrought a change in every department of mechanical operations, and our workshops are now fully manned with competent and skillful workmen and artisans in every department; the only drawback being the want of a home supply of crude material of certain kinds,

In house building, there is nothing short of a very few extraordinary and specially fine or patented things, used only in the more costly and elaborate structures, that cannot be supplied of California manufacture; and it is a matter of common remark in mechanical circles, that some of the *intended*-to-be very fine and elegant importations are inferior to what might be obtained at home. But some people who have large purses, go abroad to purchase, more for the name of the thing than from necessity, and very frequently the whistle has been dearly paid for. Hundreds of thousands of dollars have been expended out of this State, from the mere whim of pride and notoriety, which might have been spent at home with more satisfactory results to the purchaser, as far as the beauty and quality of the things purchased were concerned.

California stands proverbially ahead of the world in some respects; and as time opens up new developments and resources, there are good reasons for the presumption that this State will, in many ways at present not clearly defined or developed, still further add to her reputation.

Remedy for Bruises.

No carpenter or mechanic shou d ever be without a vial or bottle of Tincture of Arnica in his tool chest, or within easy reach. It is invaluable in cases of contusions from any cause. Let it be the first thing applied, and use it freely.

THE STEEL SQUARE.

Its History and Application to Buildings.

We have received a great many letters of inquiry in regard to the time when we will commence our series of articles on the above subject. We would state that preparations have been in progress for some time, and the first series of articles will be commenced in our January number. We will carry the series through the entire year. Letters have been received from the east as well as our own state, offering us assistance; and we cannot but help expressing our thanks for the many kind offers we have had from whole-souled Bohemians in New York City, Kansas City, Chicago and elsewhere. We earnestly desire that architects all over the country will give us their ideas in regard to any work whereupon the Steel Square is used, as we do not want our articles to partake of a sectional character.

We have extra facilities to furnish wood cuts to explain any problem, or illustrate designs; and we will thus be enabled to give all our correspondents' views to the public, so that they will be understood by all. All correspondence on the matter should be addressed to the Business Manager of this Journal.

Misunderstandings.

In thousands of instances, true and honest hearts are alienated by unwise and often foolish misunderstandings. Even good men sometimes entertain hard opinions and adverse sentiments of and toward one another, where each is the other's *average* equal in integrity and correctness of life and principles, simply because of some unjustified prejudice created by causes neither rational nor discreet. Life's history is full of illustrations where men have passed from boyhood to old age, bearing with them through the pilgrimage of time, the burden of unkind sentiments toward their fellow-man, thereby depriving life of a portion of the few pleasures vouchsafed to mankind, during their sojourn on earth. The feeling of contempt, if not positive hatred, often influences the bearing of men toward their fellows, simply through some indefensible prejudice, or unjust judgment of motives or acts. And the entertainment, with consequent and natural illustrations of this condition of things, becomes mutual;—where by just and fair understandings, respectful civilities, if not devoted friendship, might exist. It is a lamentable fact that many pass from childhood to old age, almost hating others, when by some perhaps chance circumstance, near the setting of life's sun, better understandings are reached, and regrets for the conditions of the wasted past fill the heart with sorrow. Tis better to spin well the webs of life, and sow the seed of generous acts.

Prehistoric Ruins in Arizona.

The Territory of Arizona is perhaps less known in the United States than any other part of our great country; and yet it has a remarkably fine climate, moderate temperature, fertile lands and unbounded mineral wealth. The prehistoric ruins found scattered all over the territory, speak of great antiquity; first, as to time, and second, as to who were their builders. The time when these habitations teemed with life, according to accredited traditions, dates several centuries back, to a time prior to the Aztec conquest, when a somewhat civilized race dwelt in peace and harmony, surrounded by all the comforts of a home. As to the origin of these early inhabitants, who and what they were, it seems difficult to determine, as many learned savants have disagreed as to their identity with later occupants of the country. The Aztecs have been credited with settling here, and the Toltecs have their advocates; but to whom shall we attribute the building of the towns and cities, that once flourished where we now find only ruins, and mounds of débris without any other epitaph than erosion? It is admitted by many that a contemporary race, or one from which the Pimas, Maquis and Zunis have decended, and as these living desceudants have in part the traits of a former architecture, we must conclude from these rudiments that the Aztec, Toltecs and the Tezcucans were contemporary races, and were the builders of these ancient towns. The descriptions of these ruins are mainly from travelers and Mexican history. The latter, speaking of the Gila ruins, says, "One of them is a large edifice, the principal room of which is in the center being four stories high, and those adjoining it on its four sides, with walls two varas thick of strong *argamaza y barro*, (adobe) so smooth on the inside that they resemble planed boards, and so polished that they shine like pueblo pottery."

There is mention made of a large canal from the river to the plain, several miles in length, with a width of ten varas wide. A vara is about thirty-three inches. Mr. Bartlett, an American traveler, speaking of these ruins, says: "The inner apartments in his judgment were used for store rooms; they were long and without windows. The west door was two feet wide and eight feet high; the others were three feet wide and five feet high. The walls at the base were worn away twelve or fourteen inches, and appeared to be held together only by their own thickness. The lintels over some of the doors and other openings were formed of sticks of wood, stripped of bark and cut at the end by some blunt instrument. The floor beams were five inches in diameter, and the same distance apart, set in the walls opposite each other. The largest building was fifty feet north and south by forty east and west. The ground floor shows five apartments, one on each side, and one in the interior. The north and south rooms measured thirty-two by ten feet. No evidence of a stairway was then or is now visible." This style of building without stairways prevails now with the Zunis; they ascend by means of ladders to the top of the first story, and draw the ladder up after them at nightfall or when in danger. "To the south-west the remains of a second building was discernible. To the north-east was evidence of a third, somewhat like a tower in appearance; while toward the north-west was a circular embankment, from 250 to 300 feet in circumference, which perhaps was used for a corral. The interior walls were found to be plumb; the exterior taper in a curved line. All the walls are laid with large square blocks of mud, pressed into concrete, making blocks apparently two feet in height, and four in length. Two portions of the walls of a separate building were visible, which showed that it must have been three or four stories in height." There are ruins to be seen north of the Gila, and on Salt River at La Tempe. There is an extensive plain lying between these rivers, formed by their junction, at least thirty miles across on the east, and some four or five on its western end. Ruins are found here on an extensive scale, consisting of ancient canals, mounds, and pieces of broken pottery. The remnants of pottery found scattered in the vicinity of the ruins, are worthy of note; they are handsomely embellished with paintings in figures with indestructible colors. And to test their imperishable character, pieces of the pottery have been subjected to the crucial blast of furnaces, without altering their nature. The ruins found in northern Arizona are of stone, and much of it is dressed to the plummet and square on the outer faces. The size of the houses or cave dwellings are much smaller, but of greater resistance; and when convenient the sides of cliffs and those of mountain gorges were utilized, and cozy retreats were made, safe from relentless foes. This unknown people were disposed to a quiet occupation of the country, and made many permanent improvements in the way of buildings, canals, or irrigating ditches. The central Arizona ruins were built contiguous to water-courses, showing undoubtedly that water then, as now, was a great *desideratum* for the accomplishment of the business wherein they were employed. It has been conceded by many writers, that agriculture was one of their pursuits; but my humble theory is, that all the farming that was done, was done for their own immediate wants, while the bulk of the population of the cities and towns were employed in working the placer and other mines known to them. There were a few artisans of pottery and earthenware, or else these articles and other supplies were imported from whence this people came. There is no doubt but that gold and silver was plentiful; hence the large canals, many miles in length, were brought in with a two-fold purpose, namely, of irrigating, and washing for the precious metals. The fame of these gold and silver fields extended far and wide, for it brought a mighty warlike people to contest its possession, and after many a hard-fought battle they were driven to the mountain fastnesses, and their once populous towns were destroyed and leveled with the plateau. Then, perhaps a century later, there came a time, when another race or people sought this zone, and they were a more civilized race, for they settled down with their religious fathers the Jesuits. Under the improved architecture of this order, they were content to build missions, with many elaborate designs; and during this era the churches of San Zavier del Bac, St. Gertrude at Tubac, St. Joseph at Tumacacori, San Miguel of Sonita, and others at Guavavi, Calabasas, Arivaca and Santa Ana. The mineral wealth of the country was once more uncovered to the gaze of the Spanish world, and at last it attracted the notice of the Spanish Government, and eventually led to a decree proclaiming it a royal patrimony, and that henceforth the mines must be worked in the interest of the crown. The omnipresent Apache seemed to have an irrevocable claim upon the *oro de coepela* and the *cerro de plata* of the San Rita, and joined in a claim of patrimony paramount to that of Spain, and in their own right, drove the miners from Arizona once more, and destroying much property and sealing up the mines to all intruders. Thus closed, the mines were unmolested for many years, with an occasional incursion from Mexico for the recovery of the lost mines, and in every case the Apache resisted every approach to their sanguinary hunting-grounds. This state of things continued long after the Gadsden purchase and its occupation by Americans. The Apaches are at present under control by the force of the United States Army; and the mines of a prehistoric race, after a lapse of centuries, have passed into the hands of a superior race, who now traverse the territory on a steel-roadway with palatial cars, carrying thousands to the mineral parks and mountains of Arizona. J. E. W. C.

The General Rule.

Almost the first conclusion reached by a majority of persons when contemplating the erection of buildings, is the ultimatum of cost; and this is generally regulated by the condition of finances rather than by a proper consideration of actual building values. If the available resources are limited, every dollar singly appears very large, and a few thousands are expected to secure and accomplish greater results than lie within the scope of fair possibilities; and as a rule, not only is the amount determined upon insufficient for the carrying out of *first ideas*, but after the cost allotment has been decided upon—perhaps 10, 20 or more per cent. less than a right price—the "piling on" process is commenced, and each day's "thinking the matter over" brings forward new features and suggestions, all of which perhaps increasing expensiveness, for which but little or no allowance is made, nor any increase of first appropriation deemed necessary.

It is rarely the case that owners first determine the dimensions and character of buildings contemplated, leaving the matter of cost as an after consideration, to be arrived at by intelligent estimates. Such a course would be exactly right and proper, but it does not obtain as a rule; and as a result, architects are called upon and expected to accomplish the task of securing all that is wanted in the building proposed, at the cost established by their clients, not only without the omission of a single suggested convenience, but more generally with many additions to "first thoughts."

With limited exceptions, architectural and building pursuits, particularly in San Francisco, have been surrounded with unpleasantness, often amounting to serious difficulties, all in the main arising from the condition of things referred to. If it were not possible for incompetent and unpractical men to secure engagements as architects, and a higher and more proper qualification were demanded by owners, many who now disgrace a most honorable and worthy profession would be compelled to seek some other means of procuring a livelihood, and the profession would be relieved of the pressure which now compromises its dignity and demoralizes its reputation. In olden times, and even at the present day, in communities cultivated in a right and intelligent understanding and appreciation of the science of architecture and the many qualifications necessary in those who assume its practice, the necessity existed and exists, that those who enter the profession with any reasonable prospect of enjoying honorable recognition, should and must enjoy advantages greater than a mere theoretical, incidental and "picked-up" knowledge.

And so in mechanics. Thousands claim to be *master* builders who would insignificantly fill the place of indifferent *practical* workmen. Still, the masses of owners care not how inferior the parties may be who engage to plan and erect their buildings, so that in the operation a few dollars are saved. And no sympathy is deserved by those who thus risk their interests in incompetent hands and reap a bitter experience.

The absence of a reasonably liberal disposition on the part of owners—the desire to secure large results at small outlay—the underestimating of values of things sought for,—the willingness to intrust great interests to others upon the sole basis of *cheapness*—all naturally lead to unsatisfactory results; equally so with all other operations in which right and proper methods and rules are violated.

Eastern States and Pacific Coast Shingles.

There is no one wood of which shingles are "universally made." Each section of country, State or Territory furnishes its own special character of timber for the purpose. In the earlier days of our country's history and infant growth, shingles made of oak were common. These were usually made about twice the thickness of the California redwood article, and were secured to the roof-sheathing by boring holes with gimlets through the shingles and using hand-made wrought-iron nails. By this process a smart workman might succeed in "putting on" or "laying" two hundred shingles during a then full day's work, which began with the sun's rising and ended only when its last beams disappeared beneath the western horizon. In some sections of the country, cypresses, Eastern pine, white fir, yellow fir, cedar, and other woods, are used in the manufacture of shingles. Neither is there any universal rule in reference to width, length, thickness, or exposure to the weather. While in California the general rule of "laying to the weather," is 4 to 4½ inches, in some places the exposure is 5 to 7 inches. The reason for this is, that the standard length of shingles on this coast is 16 inches, although they generally measure less than 15 inches, and seldom if ever, full 16 inches—while in some places the length of shingles is 18 to 24 inches. In our apprenticeship days there was a class of shingles used in Baltimore City which cost—if memory serves us correctly—$25 per M. These were hand-made, of perfectly uniform thickness, and jointed by planing process to an exact width, and the butts perfectly square and beveled. Consequently every shingle was perfect, with but one possible side or face for exposure to the weather. Such shingles were calculated to withstand the wear and tear of two generations.

"Deafening," or Deadening Walls and Floors.

This essential to perfect quiet and comfort, is greatly overlooked in the construction of houses generally. Most people are content to dwell in buildings where the ordinary system of walls, roof, floors, doors, sash, etc., are complete. This is sufficient for those who are oblivious to the less prominent comfort of a noiseless home. To live in a house, where noise occurring in one part, is heard in all other parts of the building, may answer the purpose; but when quiet and undisturbed comforts are considered, such abodes are by no means perfect. To persons of nervous temperament, the vibration and transmission of disturbing sounds are annoying; and in cases of sickness, the crying and noises created by children at play—thumping and drumming on pianos, and the many usual noises occurring in home life—add nothing to the comforts of the sick chamber. Nor when one is resting from weary toil in temporary repose and slumber, or sitting at the fireside, is it pleasant to be tormented by the feline choruses which often occur in the cellar, or the "rumpus," created by noisy neighbors, where homes are erected adjoining each other? Still, people are willing to endure all this, simply to save the cost of deafening the walls, partitions, and floors. The great majority of mankind trade off the finer comforts of life, simply to retain possession of a small amount of coin.

Mr. Clarence E. Ayers,

Will greatly oblige by calling immediately at the office of this journal for special reasons. Any one who will inform us of this gentleman's whereabouts, will confer a favor.

"What an Absurdity."

From time to time, questions and answers are published in journals similar to our own, in reference to mechanical labor, and other propositions, with most contradictory results; and the exclamation is often repeated, "What an absurdity!" while, in fact, the various replies may be approximately, if not exactly correct in themselves, upon the propositions answered. There can be no question asked which admits of a universally agreeing solution. Every section of country practices its own special methods of operations, and "ways of doing things," which, when presented to the consideration of persons accustomed to entirely different methods, appear strange, if not absurd. Men generally view all matters from the stand-point of their localized ideas and experiences; and not until the advantages of "going abroad," and learning from new contracts and surroundings, "how things are done in other places," do they obtain a clear, practical knowledge of apparent or positive differences. Hence, only so far, and within the bounds of uniform practices, can consistent, agreeing results be reasonably expected. In some places, the slow, careful and patient rule governs; while in others, the rush, hurry and haste prevail, with differences so great in reference to quantities and amounts, as to create and justify strong doubts in the minds of the inexperienced reader, as to the correct facts. For instance: should a brick-mason of French birth, education, and experience, come to California, and attempt to fill a place as journeyman bricklayer, in a gang of California masons, his services would not be continued a single day; while if a California workman should go to Paris, and pursue the rule of this coast, in the number of bricks constituting a day's work, he would be looked upon as a curiosity, if not hounded as a human monster; the Frenchman being satisfied that he has completed a fair day's work of ten hours, when his nine hundredth brick had been laid; while the Californian would only expect to keep up his reputation as a fair hand, by laying his 1,500 bricks, and if extra "smart," on a straight wall, increasing the number to 2,000, or 2,500. The question of quality is also an overlooked factor, in such answers. It is not reasonable to suppose that a man who does a large amount of work within a given number of hours, will execute it as thoroughly as he who exercises greater care and exactness — both being equally industrious, competent, and diligent. Hence, all comparisons fail, unless the entire conditions are absolutely equal, and the results determined from exactly similar premises.

Equal to Chinese Habits of Saving.

No fact in connection with the manner of life and habits of people of other birth, can be an excuse or palliation of or for the degraded people who have caused so much injury to California. The humanity of our race the world over, is susceptible of terrible degradation, and the place of accidental coming into the world furnishes no safeguard against the development of brutal and debased passions, customs, and practices of life in any people. The comforts and refinements of society in all civilized parts of creation, are the outcome of refined and refining influences and surroundings. When these are lacking, and the innate uncultivated and unsanctified propensities predominate and control mankind in their common acts and habits, not only unrefined and crude, but often beastly results follow, shocking to every sentiment of educated and cultured communities and conditions. "White men" of all nations have illustrated to what depths of infamy and baseness people may descend, and the near approach to brute life in many instances reached by human beings, who under better conditions would attain a social standing among the communities of earth, both honorable in character and useful, profitable and pleasant to themselves. We glean the following from the *New York Mercantile Review*:

"A number of Italian laborers have been employed on the great hotel at Long Branch, and their manner of life is so peculiar as to be worthy of notice. Two hundred of these men abide in an old tent or shed, sleeping so close together that their persons touch. Their cooking is exceedingly slight. Oatmeal dropped raw in cold water and half a loaf of bread comprise a breakfast for one. Half a loaf of bread, with lard as a substitute for butter, two

smoked herrings, and cold water serve for dinner. Supper is generally a repetition of the matutinal repast, and this programme continues week after week, the Sunday making no exception. They are thus enabled each to live at a cost of less than one dollar per week, probably not more than seventy-five cents. They pay four cents per loaf for bread, one cent each for smoked herring, and a dime's value of raw oatmeal lasts several days. On such diet they seem to retain the most robust health, and can endure severe exposure and exertion. Gambling is an inherent and absorbing practice, the games lasting often from dark until daylight. The general plan is to place pennies in a hat, which is then reversed, and all that come down heads up are retained by the tosser, while tails are replaced in the dicer."

The Sewerage of San Francisco.

A city of high grades, such as naturally existed in San Francisco, rising to an elevation of three hundred and thirty-eight feet within a distance of seven blocks from its original bay-washed shores, certainly afforded superior opportunities to skilled and competent engineers, to provide a system of sewerage, unsurpassed by that of any other city upon the face of the earth. In no direction was there a single natural obstacle in the way of perfectness, as far as the formation of the hills and flats were concerned. And the "wretchedness" of the present system of sewerage arises solely from the manifest inexperience or incompetency of the early engineers, to comprehend and provide for the contingencies of the city spreading and covering the flats at the south, and the filled-in "city front." A set of men with ordinary spirit levels, without the aid of the appliances used in advanced civil engineering opperations, would have done as well. Yet millions of coin have been expended, not in securing a good and practical system of sewers, but one that is in the main exceedingly bad. A former number of this journal contained a complete statement, showing the excellent natural facilities and advantages which, properly manipulated, would have secured to this city a run of sewers of superior excellence.

There are serious considerations involved in this question of sewerages, and we refer to it again, not as a matter of reflection upon those who have committed the errors complained of, but to attract attention to the importance of greater care in future sewer work. It is very evident to those who understand the subject in all its features, both scientific and practical, that sewers accumulate and dispense deadly vapors; and there can be no questioning the fact, that hundreds of thousands of human beings have reached untimely graves through diseases superinduced by the inhalation of sewer gases. And these two other facts are equally certain, that from this cause hundreds if not thousands of men, women and children, who in San Francisco enjoyed as fair prospects of long life as did others, have passed away in the prime and vigor of their existance. Nor is the natural healthfulness of our city's location sufficient to resist the terrible effects of the disease and death-dealing poisons which are held within, and at times in various ways emitted from, our sewers. Nor can too great or earnest attention be inspired in this matter.

It would be an assumption or far too great powers of penetration into unknown facts, to say that there is a law beyond the limits of present existence which hold men to account for the commission of errors which sacrifice human life; but the voice of humanity implores those who control matters of this kind to use every possible precaution to avoid their instrumentality, however innocent or unintentional in character, in the premature death of others. Murder in any shape or form is monstrous; yet murder is simply the destruction of human life, and it is most questionable whether those who by malpractice in professional, scintific or mechanical pursuits, through ignorance or otherwise, deprive others of their allotted time on earth, do not impose upon themselves responsibilities of a most serious and solemn character.

Durability of Tin Roofs.

Endless complaints are expressed, that "tin roofs do not last long." This is true only so far as neglects are practiced in taking care of them. If tin roofs are laid, of best quality of tin, by competent workmen, and are painted at proper intervals with the right materials, they will last a "life time." Like many other things in common use, after they are once put on and painted, they are left to take care of themselves; and in time, as by the laws of compensation provided, the paint wears off, corrosion ensues, and leaks follow as a natural consequence. Tin roofs painted once in two years, with the best quality of metallic paint mixed with pure oil, will "last forever." The necessity for more frequent painting of tin work occurs in all cities and places where the atmosphere is impregnated with salt, which is the case wherever the ocean's breezes prevail. A second error exists in the putting on of tin roofs with next to "no pitch at all." Some architects and roofers use and practice the indefensible argument, that water will find its level; and a tin roof being water tight at all points, it does not require any great amount of grade to run off the water; overlooking the fact that "buckles" and irregularities of the surfaces of roofs in many cases overcome the actual grade of the roof in the main, and so form depressions and ridges which hold the dews and rains in small puddles all over the roof, until evaporated by the sun or other natural causes; and as is the case in San Francisco, leaving the salt contained in the dew, to oxidize and act more fiercely upon the metal. A good sharp pitch is an advantage to tin roofs.

Conscientious Workers.

The tendency of our times is to disregard old maxims. It is true, many of them, based on the experience of other people under very different conditions, are not applicable in our day. "Haste makes waste" may be true in the workshop; but the business man knows that "time is money," and it pays to be in a hurry when the market shows signs of a change.

The good old maxim that "whatever is worth doing is worth doing well," is too often forgotton. "That is good enough for him, or for the money," is a poor excuse for a man to sacrifice his good name, and still worse, to induce him to acquire careless habits. It has been said that while American workmen are paid better, better fed, better educated, and, we may add, better behaved, than those of any other country, they can beat the world in slighting their work and cheating their customers and employers. The shoemaker, who turns out one or two pairs of boots a week for a customer, takes an honest pride in his work, and feels and knows that he is to be held personally responsible for every stitch he puts in. In a large factory, where the division of labor should make every man an expert in his own branch, the workman often loses his indentity and responsibility. He knows the customer cannot fall back on him, however imperfect his work. If it is only covered up so as to conceal it from the eye of his foreman he is safe. Probably this is doing much to encourage careless work. It is well known that ready-made clothing, boots, dresses, underclothing, everything made in large quantities, is far cheaper than custom work, but alas! it is very often not as good.

There are many people in every land who like to be humbugged, while others have an equally strong passion for cheap wares, whether poor or good, and some one must supply this demand. The producers of such goods employ poor workmen at correspondingly poor wages, because they must make their profits out of their workmen. Five and ten cent stores are lowering the standard of production as well as the scale of wages.

It never pays to be a poor workman. If you are a young man, aim to do honest work, and although your present employer may not be willing to pay you any more for a well-made coat or a neatly-finished boot than he would for a botch, don't be discouraged. If you are a carpenter, make the best joint you can; if you are a machinist, see that every bolt and rivet is as firm as if your life depended on its properly fulfilling its duties. How carefully the æronaut examines his balloon, the tight rope performer his rope, before he trusts his life to it. Would a shipbuilder take passage on a vessel of his own building, if he knew that he had willfully neglected or slighted any essential part of her hull? Yet many a young mechanic has destroyed his own future and committed moral suicide by sending forth a poor piece of work. The old surgical professor's caution to a young medical student is not inapt here. Said he: "If you are ever called to set a broken leg, and your work is a failure, and the man becomes a cripple, you may be sure he will always come limping along just at the wrong time, when you are surrounded by your clients and friends. He is a walking advertisement of your incapacity."

Every manufacturer knows the value of a good reputation. There are names that will sell almost anything, Why do Burt's shoes bring a better price than those of other makers? Why does Squibb's ether bring a higher price than that of any one else? Why do Merk's chemicals have their own price list? Because they are known to be honestly prepared.

Tha path to fame by honest merit is a slow and tedious one. A manufacturer who is so careful about his products that he has to put a higher price on them than his less conscientious neighbor can sell for, may be repaid at first by small sales and smaller profits. It takes a long time to build up a reputation by excellence, but once acquired it is like the pearl of great price.

It is much the same with the workman as with the manufacturer. If every stroke he strikes is solid work, conscientiously performed, he will acquire a reputation, limited as it may be, that is sure to pay in the end. We would not conceal or deny the fact that some men labor under peculiar disadvantages. All men are not born equal, either mentally or physically. One is naturally skillful in one direction, another is expert in many things. One man may do his level best, and yet he will not turn out as good a piece of work as his more skillful brother who only half tries. Let him not be discouraged because he is handicapped in the race, and may not be able to reach the top of the ladder. There is room for honest workmen everywhere; even respectable mediocrity pays better than brilliancy coupled with trickery.

The native American is distinguished by his ingenuity, and with half a chance he makes his mark everywhere. Yet he sometimes loses the race in competition with less able men of other lands, because their careful training and early drill in their profession, their long and severe apprenticeship, has more then compensated for the want of natural tact and ingenuity.

Perseverance will not conquer all things, but it goes a long way toward success. While luck seems to favor the few, most men have to carve out their own success by hard labor, in which a full determination to do everything to the very best of one's ability counts for more than is generally supposed. Above all things, do n't waste time in regretting that another trade was not chosen. If it is an honest one, stick to it and it will pay.—*Scientific American.*

Rust-Proof Iron.

Mr. George Bower has invented, and his son has improved, a process for coating iron with an indestructible surface of magnetic oxide, which is said not to be open to the objections to the Bariff process.

The process, which is not secret, consists in heating the articles to be coated in a closed chamber by means of carbonic oxide, heated air being made to enter the chamber for the double purpose of burning the gas and for combining with the iron. The excess of air, after burning the carbonic oxide gas, combines with the iron, forming first the magnetic oxide, and then the hydrated sesquioxide, or common iron rust. By shutting off the supply of air until only enough is admitted to burn the carbonic oxide, the rust is converted into the magnetic oxide. The process is repeated until the film is sufficiently thick for the purpose of protection. When complete the film has a beautiful French gray tint.

The London *Times* states that the application of this invention has been undertaken on a large scale, the chamber where the oxidization is now carried on being large enough to contain about a ton of miscellaneous articles. The value of the invention, and of the method of applying it, is no longer a matter of doubt, the severest tests having been made of the iron coated. The earliest experiments only produced a film that would peel from the metal; but by the new method a coating is made which is inseparable from the metal. Inasmuch as the cost of oxidization is less than that of a coat of paint, it has become evident that the next generation, at least, may be happy with cheap and indestructible iron.—*Scientific American.*

Plaster Paris on Outside Cement Work.

In the greater portion of the cement work done in San Francisco in the earlier periods, plaster paris was largely used as a component of the cement mortar, to economize cost. But a few years' wear and tear in such cases very clearly demonstrated the fact that plaster paris was not a proper material for outside exposure in this climate. The theory that several coats of paint would protect the plaster paris, and prevent its decomposition and scaling, also proved fallacious. Plaster paris brackets, corbels and enrichments once enjoyed a favorable recognition; but in these forms experience further demonstrated the impractical nature and quality of plaster paris for any outdoor purposes. It should never be used where good and lasting finishes are desired.

Burning of a Supposed Fireproof Building.

In the recent burning of the Manhattan Market, one of the most conspicuous and costly buildings in New York, we have another illustration of the fatal mistake of putting into a would-be fireproof building just enough wood to cause its destruction.

In this case the blunder was not so apparent as the common one of setting a wooden spire over a stone church, or a tinder box, in the shape of a mansard roof, over a granite warehouse; yet the blunder was there, and the ruin of a building which cost $1,400,000 is the result.

The building was considered practically if not absolutely fireproof. The floor was of concrete, the walls were of brick and glass, the rafters were iron trusses, and the roof was covered with slate. The stall fixtures were of wood; but the stalls were so widely spaced that there would have been no great danger of injury to the main building through their burning, even when re-enforced by the pile of empty barrels in which the fire began, had the roof been constructed as it should have been in a building of that character. Unfortunately the vast and lofty arch of the roof was lined with wood for convenience in fastening the slates, and, though the quantity of wood was relatively small, it was large enough to insure the destruction of the building, otherwise fireproof against fire.

The building was erected in 1871, and occupied the block bounded by Thirty-fourth and Thirty-fifth streets, and Eleventh and Twelfth avenues. It was 800 feet long, 200 feet deep, 80 feet high in the interior, and was surmounted by a lofty clock tower. The building, with the land and foundations, cost about $2,000,000. The loss by the fire exceeded $900,000.—*Scientific American.*

The First Shower of the Season.

The first shower of rain for the "rainy season" of 1880 and 1881 fell early on Friday morning, October 8th, and as usual found many unprepared for its coming. It is a well known fact to all Californians that the "first rain" almost invariably falls in Octcober, and frequently in September. And sometimes the rains of the tenth month of the year cut a prominent figure in the total amount for the season. Still people fail to be warned by these well understood facts, and many suffer loss by damages in various shapes, through neglect to observe the natural laws of the elements at this season of the year, by providing shelter and protection for their property. Every "first rain" finds unroofed and unenclosed buildings in a condition to be injured by rain, which by a little more diligence might be secured from damage. But we presume that it will always be thus, as tardiness and delay are prominent characteristics in many persons. Experiences teaches, but the masses do not generally profit by the lesson imparted.

Treatment of Burns.

Dr. Shrady, of New York, recommends that burns be treated by applying a paste composed of three ounces of gum arabic, one ounce of gum tragacanth, one pint of carbolized water, (one part to sixty) and two ounces of molasses. The paste is to be applied with a brush, renewed at intervals, and is stated to be a successful method. Four applications are usually sufficient, the granulating surfaces being treated with simple cerate or the oxide of zinc ointment, as indicated.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

BUSINESS MANAGER OF THE ARCHITECT.—I have noticed in your valuable journal that you intend shortly to get up a series of articles on the Steel Square. It it will not trespass on your time and patience, I will be thankful if you will give me the information I desire. I have noticed that the brace measures on different squares are not the same. Will you please give me the CORRECT length of braces, having runs from 24 inches, to 72 inches?

Respectfully, C. H. D., San Francisco.

ANS.—The following measurements are CORRECT. To reduce the decimals to inches, you multiply by 12 for inches, the product by 8 for eighhts, the eighths, by 2 for sixteenths.

2 feet	0	inches	Brace	2.8248
2 "	3	"	"	3.1819
2 "	6	"	"	3.5749
2 "	9	"	"	3.8903
3 "	0	"	"	4.2426
3 "	3	"	"	4.5961
3 "	6	"	"	4.9497
3 "	9	"	"	5.3141
4 "	0	"	"	5.6568
4 "	3	"	"	6.0103
4 "	6	"	"	6.3639
4 "	9	"	"	6.7162
5 "	0	"	"	7.0705
5 "	3	"	"	7.4246
5 "	6	"	"	7.7781
5 "	9	"	"	8.1317
6 "	0	"	"	8.4852

ED. ARCHITECT.—Who owns the gas fixtures in a house?

Yours, PLUMBUM.

ANS.—This is a specimen of some questions we have received this month. We would call the attention of "Plumbum" to the fact that questions must be *explicit in their meanings*. Whoever pays for gas fixtures of course owns them.

ED. ARCHITECT.—As I want to furnish all materials for my building, I take the liberty of asking you how much of lime, sand and hair will it require to make enough good mortar to plaster 100 square yards?

Builder, HAYWARDS.

ANS.—8 bushels good lime, 16 bushels clean sand, one bushel of hair. The longer the latter the better.

BUSINESS MANAGER ARCHITECT.—How many pounds of lath nails does it take to put on 1000 laths?

ANS.—There are 420 lath nails in a pound. So 11 pounds is what you will require for 1000 laths.

ED. ARCHITECT.—Will you please give me the meaning in English, of the following names of places in our Golden State: Alameda, Alcatraz, Soledad, Santa Cruz, Pescadero, Nevada, Los Gatos, El Dorado, Campo Seco, and Mariposa? By so doing you will oblige a

GEOGRAPHICAL BEGINNER.

ANS.—

Alameda	Public promenade with trees.
Alcatraz	A Pelican.
Soledad	Solitude.
Santa Cruz	Holy Cross.
Pescadero	Fish Seller.
Nevada	Heavy Fall of Snow.
Los Gatos	(City of) the Cats.
El Dorado	The Golden Land.
Campo Seco	Dry Camp.
Mariposa	Butterfly; Rushlight.

ED. ARCHITECT.—A man paid $330 to 55 laborers, consisting of men, women and boys; the men received $10 a week, women $2 a week, and boys $1 a week. How many were there of each?

PAYMASTER, Eureka.

ANS.—30 men—5 women—20 boys.

MANAGER ARCHITECT.—Knowing, from your long practical experience, that you are abundantly able to give us information on the practical uses and preparation of *Glue*, I have taken the liberty to ask you to impart some of your knowledge to us through your journal, knowing it will be of interest to many others.

RED BLUFF COMPANY.

ANS.—Our own ideas and those culled from the London Furniture Gazette are contained in the following condensed lines: All factory glue requires water before it will melt properly. To find out just the quantity of water necessary, experience alone will tell you, as it is possible to melt glue and have it so thick, that after it is dry, it will be so brittle as not to adhere to the wood. Generally there is not enough of water used to make good glue. Glue requires to penetrate the pores of the wood, and the more it does so, the better the joint. Slow drying glues are the best. Never use thick glue for joints or veneering. Always work it well into the pores of the wood. Glue both surfaces of your work, except in the case of veneering. Never glue upon hot wood, as the hot wood will absorb all the water in the glue too quickly and leave only a very little residue with no adhesive power in it. According to Mr. B. Beven, the actual adhesion of glue is something greater than 715 pounds to the square inch. In picking out glue, get than that which is transparent, of a brown yellow color, without either taste or smell. Hold a piece of it between the eye and the light, and if it appears of a strong dark brown color, free from black spots or of a cloudy appearance, you can pronounce it good. Always steep glue in cold water for several hours before applying heat. Let the wood be dry and the glue hot is a good rule to go by. When glue is melted over and over again, it often becomes black, when such is the case, throw it away, as it is is too much bother to refine it again. Any further information will be given to inquiring friends.

G. H. W.

The Octagon Problem.

In the September number of this journal, we published a practical method by which the measurements of the respective sides or planes of octagons might be ascertained. We have practiced the rule given in hundreds of cases during the past thirty years, and have never found it to fail of *practcial correctness*. The term "diameter of an octagon" was used in this sense. Describe a circle of any given diameter, then form the octagon outside the lines of the circle, so as to cut the lines of the circle with the triangular lines forming the faces or sides of the octagon. This of course will give a measurement from any two opposite sides or faces of the octagonal figure, equal to the diameter of the circle, and may be not improperly termed the diameter, or measurement through the body of the octagon. In the solution of all problems, we hope and shall strive to be at least practically correct; and where we can offer a simple rule, which will serve all practical purposes, and be the more readily comprehended than others involving considerable figuring, we prefer to do so; as a large majority of mechanics have not enjoyed the advantages of liberal education, and many would find it difficult to work on problems requiring mathematical and decimal correctness to arrive at perfect results. We think that we can serve our patrons best by furnishing them rules and formes for their guidance, freed from all complications; and we shall be obliged to any one who may discover error in any rule given by us, if they will inform us of the fact. We simply suggest further, that in all tests made, squares, triangles, etc., must be true, or false results will follow.

We publish the following communication from a brother architect, which presents another method of determining the result refered to:

ED. CAL. ARCHITECT:—In your September number under head of "Everybody's Column," in reply to a query as to a mode of finding the side of an octagon you give a very good rule. Permit me to offer another one which is perhaps better, as being done *decimally* and consequently more accurate. To find the side of a circumscribed octagon, Haswell says: multiply radius (half diameter) by .828427. Now remembering that $\frac{1}{8}$ inch is expressed decimally by .01041 the application of the rule is very simple, as follows: Required side of octagon the diameter of whose inscribed circle is 7:0.

3. 5 (radius decimally expressed) x .828427—2.8994045—that is, 2 feet 0 inches, plus the decimal, which, reduced into inches by a very simple process known to all school boys, gives 2 feet $10\frac{3}{4}$ inches and a small decimal more; the same result as arrived at by you, *only a little* more accurate decimally."—J. B. W.

Unnoticed by us, until too late for correction, the figures 7 and 17 appeared as giving the true out of

the angle joint of an octagon. This was an error. The more accurate figures are 5 and 12, 7½ and 18, etc.

We shall be glad to hear from all who are interested in rules, methods, systems and in this or any other connection, containing matter or principles of general information and instruction. Our readers should bear in mind that this journal is circulated in every state of the Union, and in foreign countries; and that it has so far secured a prominent position among the journals of our country, as to be largely copied by the leading publications of the United States and London.

THE RAILWAY AGE presents some interesting figures relating to past and present construction of railways in this country, from which it may be noted that more miles of railway were laid in the United States, in 1879, than in any year since 1873, the excess being 4,721 miles. In the 287 projected railway enterprises during the first half of 1880, the contemplated mileage adds up to 20,000 miles. This includes 1,700 miles of track laid, 8,000 miles under construction, and 10,850 miles projected.

Our Mountain Tops.

The following table of the altitudes of prominent mountains in the Sierra Nevada Range on the Pacific Coast of the United States, has been kindly furnished to the *Alta* by Lieutenant-Colonel R. S. Williamson, U. S. Engineers, of the Lighthouse Service on this coast. The information is not generally known, and will be valuable to many of our readers. Most of the altitudes were obtained from Prof. Whitney, formerly State Geologist. In the cases where the exact numbers are given, they are the results of barometric observations on the top of the mountains. In the single case of Monte Diablo, the altitude was determined by level as well as by barometer, the results by the two methods differing by a little over two feet. In the cases where the altitudes are not given in exact numbers, as with Mount Whitney, Mount Williamson, Mount King, and Castle Peak, the altitudes were determined approximately by sighting from other mountains: Mount Whitney, 15,000 feet above sea level; Mount Williamson, 14,500; Mount Tyndall, 14,386; Shasta Peak, 14,440; Mount King, 14,000; Mount Lyell, 13,214; Mount Hoffman, 10,872; Castle Peak, 13,000; Mount Davidson, 7,827; Mount Diablo, 3,856.—*Alta.*

ACCORDING to the *Electrician*, the life of a submarine telegraph cable is from ten to twelve years. If a cable breaks in deep water after it is ten years of age it cannot be lifted for repairs; it will break of its own weight; and cable companies are compelled to put aside a large reserve fund in order that they may be prepared to replace ther cables every ten years. The action of the seawater eats the iron wire completely away, and it crumbles into dust, while the cores of the cables are very costly, and it is a very difficult matter to repair them, in comparison with land lines.

We glean the following from the *San Francisco Real Estate Circular* for October:

"Although the real estate sales recorded last month were smaller, in both number and value, than those made the previous month, yet we have to record an increased inquiry for property. The general outlook for buisness has certainly improved; many of our wholesale houses have lately been forced to work their hands till midnight to fill country orders."

"Mr. Spreckels has purchased six blocks on the water front at the Potrero. Mr. Spreckels will at once erect a new sugar refinery there, of the capacity of 2000 barrels or 500,000 pounds of sugar per day. All the machinery will be new, and all of it that can be made here will be made by our mechanics; the remainder will be ordered east. The wharves, building and machinery it is estimated will cost $750,000. Three hundred hands will be required. He will also subsequently erect blocks of new buildings for his workmen. We regard this as one of the most important enterprises ever entered upon in this state."

"The Hibernia and German banks report a better demand for money, although the Hibernia is receiving two dollars on account of existing mortgages for every dollar which is being granted on new loans. Some of the banks are asking 9 per cent., and are getting it in many cases. The Hibernia Bank only loaned $48,950 in September, and released $121,150.—The French Bank made no loans. The German Bank let $73,300, and released $69,325; the Savings Union loaned $129,700 and released $74,500. The Humboldt, Security and Califoruia banks made no loans last month on city real estate. Private parties took mortgages of the value of $131,945, and gave releases of the value of $309,314.—Money at 8 per cent., with the lender paying the mortgage tax, (which this year is $2.21) is as cheap here as it is now in the Atlantic States."

"We have before called attention to the remarkable fact that very few Jews live in Oakland. Hebrews are noted for shrewdness in their real estate purchases. They buy only the best class of residence property, north of Market street, for dwelling purposes. Almost none of them live or own in Oakland. They know that the big city is the place where the money will be made in real estate; and, while that is the case, they do not wish to buy in an outlying suburb, separated by six miles of water from the city."

"Mayor Kalloch was some three months ago added to the city office-holding Spring-Valley officials. All his dodges and arguments, however cleverly prepared and speciously put, do not deceive any but the most ignorant. The fact that his last argument for the water company was published in full in the paid Spring-Valley papers, with commendatory remarks, is enough of itself to show the whole game."

"Croakers and fault-finders talk as though purity in office, low taxes, plenty of work, high wages and general perfection reigned perennially everywhere else, and as though Satan, and Satan only, ruled in San Francisco. This of course is all humbug. The Devil has many children here, it is true, and he keeps them pretty well provided with offices, or in such prominent positions that their rascalities are open to view and can be seen of all men; but he has not lessened his family anywhere else to give us an over-supply. * * * We have a great city and a great future here. If our money is not finally safe here, it is not safe anywhere. If this city has not a great future, no city has. We will get it at least partially cleansed by-and-by of rascals in office, of the Chinese plague, and of other nuisances."

Extensive Market Improvement in the Western Addition.

"*The Western Market*," occupying a portion of the block bounded by Polk, Bush and Austin streets, is undergoing extensive enlargment and improvement. The purpose of the owner is to provide ample market accommodation for that section of the city; to effect which, two of the Polk street stores have been removed, and the space occupied by them added to the grand entrance from Polk street. This enlargement when completed, will place this market in the front rank of first class establishments of its kind in this city, and supply sufficient market facilities in that section for many years to come.

Its three frontages on the three streets named will certainly secure almost unequalled ventilation, and furnish patrons of the establishment assurance that the meats, fish, poultry, vegetables, groceries and general produce on sale will be free from the taint of ordinary market shops and places where the only opportunity for the ingress of pure air is generally through the single open front.

People are too apt to deal where they can buy the cheapest, or secure the greater quantity for the smallest amount of coin, overlooking or disregarding the fact that the best and freshest of market produce will quickly contaminate, and become unwholsome by being kept in poorly ventilated places. Decomposition is continually going on, and unless there are currents of air introduced to carry off the impurities, they as a matter of course create unwholsome conditions, which must naturally affect injuriously every thing brought within their influence. In this essential particular, this market will have no superior in San Francisco.

We understand that the owner has made such arrangements with the present occupants, and other new parties, as will make this the grand center of "market" operations, and furnish in the Western Addition, a first class market place, where every thing necessary for table and family purposes can be had.

California Oil Works.—Another New Enterprise.

We shall always notice with pleasure every new addition to the manufacturing interests of this city and coast, and hope that our friends and all parties interested, will furnish us early and full information in this connection. Our columns are open for all statements of a reliable character, in reference to the manufacturing and all other interests of this State.

The California Oil Works have commenced operations, under the proprietary management of Mr. Reese Llewellyn, with D. E. Colton, Superintendent. The machinery has been erected under the personal supervision of Messrs. Llewellyn & Colton, and is of a permanent and efficient character. Linseed, Cocoanut and Castor Oils of the purest character will be produced, together with linseed cake and meal made from the residium. The consumption of these oils on this coast, particularly for painting uses and purposes, is and will continue to be large, owing to the fact that eighteen twentieths of the buildings erected for dwelling purposes are wooden constructions, requiring painting every few years. The production of these oils has heretofore been confined to perhaps only one other establishment, and the new works will introduce a competitor in the oil lines, calculated to benefit the public generally, and render unnecessary the large shipment from the east. It will also stimulate the growing and production of the seed etc., needed for the purposes of manufacturing, and open up new sources of prosperity for the farmers and seed growers. We certainly wish the new enterprise success, and hope that it will secure the encouragement its importance merits.

Elsewhere in this issue, reference is made to a three quarter million dollar enterprise contemplated by Mr. Spreckels. Let the work go bravely on, until every necessity in the producing and manufacturing line shall be filled. We want population "which bringeth wealth," and there is no surer means of adding thereto than the investment of coin by our monied men in these operations which require the labor of thousands of operatives. The amount of money which has been and continues to be sent away from this State, for the purchase of things which might be manufactured and produced within its limits with profit, has been and is large; and it is surprising that so many wealthy persons, should permit the opportunities to pass, to correct this impoverishing state of things, and arrest the flow of gold from our midst.

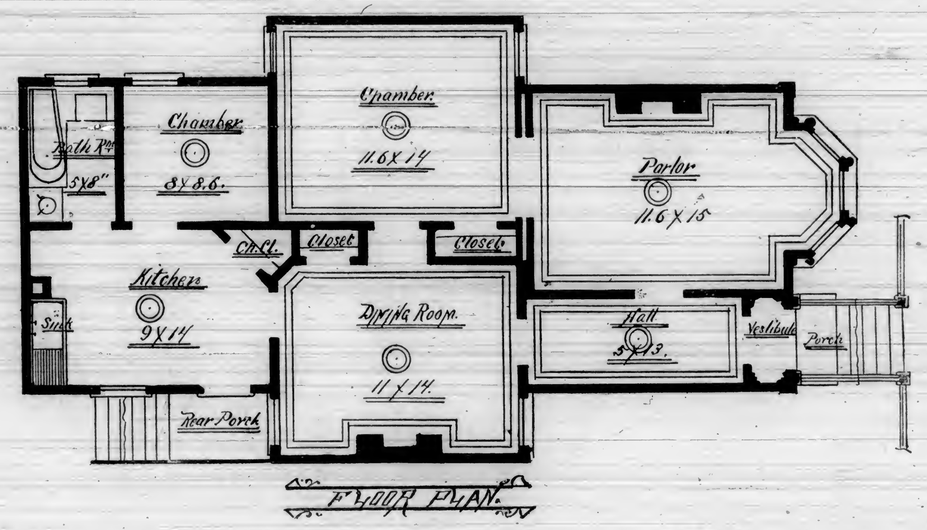
Book Notice.

With a hearty Good speed and thank you, do we place a new book, (just received with compliments of the author) in our library. For some time past, Mr. Fred. S. Hodgson has been contributing articles on the *steel square and its uses*, to an eastern paper, and he has at the solicitation of his friends embodied all his printed ideas in book form. We have perused the book carefully, and can assure our own readers that it handles the subject in a careful and intelligent manner. We will have a large supply on hand by the time this reaches our subscribers, and will forward it to any address for 75 cents and 8 cents in stamps to pay postage.

London Gas Companies.

In 1869, the 13 companies then supplying gas to the metropolis employed an aggregate capital of £7,828,844. At the close of last year the number of companies had fallen to four, but the capital employed by them was £12,681,818. In the same ten years the quantity of coal carbonized increased from 1,171,588 tons to 1,869,947 tons per annum, and with this increase in the total quantity used, there has baen a very considerable improvement in the number of feet of gas obtained from each ton so carbonized. The quantity sold last year was 17,643,660 thousands, against 9,885,857 in 1869. Last year it was 17,634,660. Again, while the population increased by a little more than a ninth, the consumption of gas rose more than half. The gas rental of 1871 was £2,194,863. Last year it was £3,061,393. It follows, therefore, as a matter of course, that per head of population there is a much larger consumption of gas now than there was eight or ten years ago.—*Exchange.*

FRONT ELEVATION


Chamber
11.6 X 14
Chamber
8 X 8.6.
Bath Rm
5X8"
Parlor
11.6 X 15
Ch. Cl.
Closet
Closet
Kitchen
9 X 14
Sink
Dining Room
11 X 14
Hall
5 X 13
Vestibule
Porch
Rear Porch

FLOOR PLAN.

Another Great Engineering Work Completed.

An English exchange gives the following account of the completion of one of the most stupendous works of engineering skill and enterprise of ancient or modern times. "We have been in the habit of crediting the New World with some of the most daring and enterprising improvements, but we can boast of nothing that surpasses this. Says the exchange referred to: "Somewhere about 3,000 workmen, 600 or 700 wagons, 17 or 18 locomotive engines, 3 steam 'navvies,' and a great quantity of minor machinery of various kinds have been engaged since 1875 at the southeast end of London in a work, compared with which the building of the pyramids—with modern appliances—would have been no very signal fact. Hitherto, the one entrance to the Victoria docks from the Thames had been at Blackwell Point, but now there is a dock capable of receiving all vessels, no matter what they might be. Three and a half miles of walls have been built, inclosing 90 acres of water. These 'walls' are 40 feet high, 5 feet thick at the top, and 18 feet thick at the bottom, the whole of this enormous mass being composed of solid concrete, for which 80,000 tons of Portland cement have been used. Some 4,000,000 cubic feet of earth have been dug out. It may assist the imagination somewhat to state that if it were filled into carts, the vehicles would form an unbroken line 7,000,000 miles long. The excavations have gone through submerged forests; and, among other curiosities dug out, have been a reindeer's horn, a Roman vase, and what is supposed to be an ancient British canoe, carved out of solid oak. The latter is now in the British Museum. The new entrance below Woolwich will save about three and a half miles of river navigation, which, in the case of vessels of heavy draft, is, of course, a matter of very great importance."—*Scientific Canadian.*

How Screws are Made.

The process of making a screw is very interesting. The rough large wire in big coils is, by drawing through a hole smaller than itself, made the size needed. Then it goes into a machine that at one moment cuts it a proper length and makes a head on it. Then it is put into sawdust and "rattled," and thus brightened. Then the head is shaped down smoothly to the proper size and the nick put in at the same time. After "rattling" again in sawdust, the thread is cut by another machine, and after another rattling and thorough drying, the screws are assorted by hand, (the fingers of those who do this move almost literally like lightning) grossed by weight and packed for shipping. That which renders it possible for machines to do all this is a little thing that looks and opens and shuts like a goose's bill, which picks up a single screw at a time, carries it where needed, holds it till grasped by something else, and returns for another. This is about the most wonderful piece of automatic skill and usefulness I have ever seen, and it has done its distinctive work at the rate of thirty-one screws a minute, although this rate is only experimental as yet. Ninety-three gross per day, however, has been the regular work of one machine.—*The Mechanic.*

What is an Explosive Mixture.

The ratio between air and gas to form an explosive mixture was investigated at great length before a committee of the House of Commons in 1867. Some of the first chemists and gas engineers were examined. Dr. Frankland said that one part of gas to ten of atmospheric air constitutes the most explosive compound, the lowest mixture which it is possible to explode being 6.6 per cent. of gas. Mr. Foster found from experience that the most explosive mixture was about eight or nine volumes of air to one of gas. Mr. H. E. Jones considered that from ten to twelve would be most destructive, but Mr. R. Jones said there would be nothing dangerous up to one in five, it would be dangerous at one in nine, and very dangerous at one in ten. Mr. Bramwell was of opinion that about ten per cent. is the mixture of explosiveness. When the gas becomes a fourth part of the air the possibility of explosion ceases. The weight of evidence was in favor of the opinion that the maximum admixture must be one in ten.—*Exchange.*

The First Friend.

The World's Fair of 1883.

In the past month the Commissioners of the World's Fair held preliminary meetings in New York: executive and other committees were appointed, and subscription books opened—in other words, the Commissioners began their active work. Parties intending to exhibit will soon have to prepare an outline of their proposed exhibits, so that the amount of space required can be estimated in determining the magnitude of the buildings. We look forward to a brilliant display of machinery and manufactures, as well as of many new designs in engineering structures.

The different prominent engineering societies of the Union should be represented at the Fair, for many foreign engineers will doubtless visit the same, whom it will not only be the interest and duty but the courtesy and pleasure of American engineers to entertain. The exhibition will afford the engineering societies a suitable opportunity to demonstrate by drawings, models and descriptions the more important advances made in the profession by American engineers, especially in the seven years preceeding 1883. A collection fairly illustrating our progress in this particular can be best carried out and shown to greater advantage and correctness by the prominent engineering societies. The sooner the matter receives consideration, the better; three years are not a long time when preliminary routine will occupy many months before the arrangements proper can be inaugurated. At the Exposition of 1876, the American Society of Civil Engineers was the only representative of the profession as a body; but in 1883 the American Society of Mechanical Engineers, the Western Society of Engineers, the Engineers' Society of Western Pennsylvania, and others since established or risen to prominence, should, and doubtless will, claim their share of representation. It might be possible for these different societies to combine in some satisfactory way. Whatever may be ultimately adopted as the plan best fitted to insure a successful, harmonious and pleasant representation, it will prevent unnecessary haste, labor and confusion; and the aforesaid aim will be best attained if the different engineering societies give this matter consideration at as early a date as possible.—*The American Engineer.*

Metals in the Body.

The human body, which seems made up of flesh and blood, really contains several metals and gases, and other substances, which perform important offices in the world of science. Nitrogen and carbon, and hydrogen, are its chief constituents, but it holds, besides, about two pounds of phosphorus which is essential to the health of the bones and vigor of the brain. This phosphorus, if extracted and put to use, would make up about 4,000 packages of friction matches. Besides phosphorus, it contains a few ounces of sodium, and a half ounce of potassium, which school-boys know as a curious metal, that burns brilliantly on the surface of the water, or when touched by an icicle. The quantity of such in the body would be sufficient for many experiments in a large school. In addition to sodium and potassium, there are a few grains of magnesium, enough to make the "silver rain" for a family's stock of rockets on a Fourth of July evening, or to create a brilliant light visible twenty miles away. Who knows but some reckless chemist may undertake to drive a profitable business by extracting these materials from dead bodies?—*Scientific Press.*

It appears from the first report of the Central Sanitary Bureau of Japan, just issued, that a public laboratory has been established in that country for the analysis of chemicals and patent medicines. The proprietors of all patent medicines are bound to present samples, together with full particulars concerning composition and proposed use of each remedy. During the year there were no less than 11,904 applicants for licenses to prepare and sell 148,097 patent and secret medicines. Permission for the preparation and sale of 58,638 different kinds were granted, 8,502 were prohibited, 9,918 were ordered to be discontinued, and 70,934 remained still to be reported on. The enforcing of similar restrictions in this country would undoubtedly prove a boon to the thousand of persons who are being imposed upon by nostrum venders.—*Exchange.*

Crushing Strength of Bricks.

The resistance of bricks to a crushing force varies greatly according to the quality of the brick. Trautwine, who has experimented considerably with building materials, says on this point, that a rather soft brick will crush under a weight of 450 to 600 pounds per square inch, or about 30 to 40 tons per square foot, while a first-rate machine-pressed brick will require from 300 to 400 tons per square foot. This last is about the crushing limit of the best sandstone—two-thirds as much as the best marbles and limestones, and one-half as much as the best granites or roofing-slates. But masses of brickwork, he notes, will crush under much smaller loads than single bricks. In some English experiments, referred to by this author, small cubical masses only 9 inches on each edge, laid in cement, crushed under 27 to 40 tons per square foot. Others, with piers 9 inches square and 2 feet 3 inches high, in cement, only two days after being built, required 44 to 62 tons per square foot to crush them. Another, of pressed brick, in best Portland cement, is said to have withstood 202 tons per square foot, and with common lime-mortar, only one-fourth as much. The same authority, however, is careful to add the statement that cracking and splitting usually commence under about one-half the crushing loads. To be safe, he recommends that the load should not exceed one-eighth or one-tenth of the crushing load; and so also with stone. Moreover, he notes these experiments were made with low masses, but the strength decreases as the proportion of the hight to thickness increases. He cites the following examples: The pressure at the base of a brick shot-tower in Baltimore, 246 feet high, is estimated at 6¼ tons per square foot; and in a brick chimney at Glasgow, Scotland, 468 feet high, at 9 tons. Prof. Rankine calculates that in heavy gales this pressure is increased to 15 tons the leeward side. The walls of both are, of course, much thicker at the bottom than the top. With walls 160 feet high, of uniform thickness, the pressure at the base would be 5 4 tons per square foot. He prudently concludes, that with our present imperfect knowledge on this subject it cannot be considered safe to expose even first-class pressed brick work, in cement, to more than 12 or 15 tons per square foot; and good hand-molded bricks to more than two-thirds as much.—*Manufacturer and Builder.*

Power of Windmills.

Windmills are apparently gaining in popular favor of late, but at the same time there seems to be a demand for reliable information as to their efficiency and power on the part of purchasers. We have been unable to discover a record of any experimental determination of these data obtained from our American mills. During the last century Coulomb made some experiments in France upon a Dutch windmill of four sails, each 35 feet long and 6⅔ feet broad, with good angles of "weather," and ascertained that when driven by a wind of 22 feet per second volocity, an amount of work equal to a little above seven horse power was performed.

The quantity of water raised by one of our best American windmills, accepting the manufacturers' statement as correct, (which we have reason to do) shows that a 25 foot velocity wind develops, when propelling a mill of 25 foot diameter of wheel, 1.34 actual horse power. This appears as a small result when the first cost of the mill is considered; but when the slight expense of running the mill is taken into account, the economy of windmills becomes more apparent. Besides, in the American mills little attention has been paid to securing the best angles for the "sails" or blades, which would greatly increase their efficiency if adopted. In order to augument the efficiency and value of windmills, a series of careful experiments should be instituted, the results of which would furnish data for comparison and improvement.—*The American Engineer.*

Considerable Agitation has been caused throughout the British architectural world by the award in the competition for new municipal buildings at Glasgow. It will be remembered that a ready-made plan accompanied the instructions, which architects were expected to follow, liberty being, however, by an afterthought, granted them to vary from it if they wished. The heights of stories and several other points were fixed, and the limit of cost was set at one hundred and fifty thousand pounds. Ninety-six designs were received, and Mr. Charles Barry was appointed, according to the promise to competitors, to make the award, which was briefly as follows: The arbitrator began by saying that at Glasgow prices none of the designs could be properly carried out at the proposed cost. The model plan itself, which all were required to conform to substantially, could not, with the heights of stories prescribed, be executed, even with the plainest exterior, for less than one hundred and ninety-three thousand pounds. Mr. Barry, however, thought that the instructions, which gave a definite cost in connection with a minutely detailed model plan, suggested the inference that the price was an actual estimate from the plan, and competitors would therefore be justified in basing their estimates upon the standard deduced by comparing the cubic contents of the model design with the specified sum. Reasoning in this way Mr. Barry thought it fair to consider that those designs which would not exceed in cost the model plan had fulfilled the terms of the competition, and out of these he designated the best three, as entitled to the premiums offered. At the head of the list he placed a design which proved to be the work of Mr. George Corson, of Leeds, an architect of considerable distinction.

A postscript was, however, appended to the report, saying that the arbitrator was of opinion that other plans had been sent in of much superior merit to any of the premiated ones, but more costly; and he regretted that, being bound by the instructions as to the limit of cost, he did not feel himself at liberty to specify them. Naturally enough, this set the Town Council to considering whether they had not better pay Mr. Corson and the two others their premiums, and get rid of them, and then choose one of the more expensive designs for execution: that is, to put it clearly—turn away the ablest of the architects, who were honorable enough and skillful enough to keep the cost of their designs within the prescribed limits, and bestow the great prize, the execution of the building, on some man who evidently was either too ignorant to know how to estimate the cost of his work, or dishonestly and intentionally violated the conditions in the hope of gaining an advantage over his more scrupulous competitors. This way of considering the subject, though common enough among town officials, is so admirably calculated to encourage the worst features of competition by setting a premium on recklessness and fraud, that we are amazed to find so respectable a journal as the *Architect* talking about Mr. Barry's "rigorous technicalities," as compared with the "generous sympathies" of those who "ignore everything of the kind," and claiming that the arbitrator "coolly put all the best designs on the shelf, and bestowed the cash upon the second-rate, for reasons of discipline." For reasons of common honesty, we should say, such as all those who have any regard for professional honor should uphold and maintain to the utmost. The other journals take a much more sensible view of the matter, and suggest a solution of the difficulty which is obviously the only fair one; that if the corporation of Glasgow do not wish to carry Mr Corson's design into execution, they should, after paying him the premium which he has fairly won in the first competition, institute a second, with a different limit of cost, or none at all, to which he will be admitted on equal terms with such others as they may select; instead of ignominiously debarring him from all possibility of gaining the real prize, in return for having already once been the most successful in fulfilling all the conditions which they had themselves laid down as necessary for obtaining it.—*The American Architect and Building News.*

Self Control in Speech.

If a man would get through life honorably and peacefully, he must necessarily practice self-denial in small as well as great things. The temper has to be held in subjection to the judgment, and the little demands of ill-humor, petulance and sarcasm kept resolutely at a distance. If once they gain an enterance into the mind they are apt to return and establish for themselves a permanent occupation there. It is necessary to one's personal happiness to exercise control over our words as well as acts, for there are words that strike even harder than blows. The stinging repartee that rises to the lips, and which, if uttered, might cover an adversary with confusion, how difficult it is sometimes to resist saying it.—*The Mechanic.*

The Sunlight.

"No article of furniture should be put in a room that will not stand sun-light, for every room in a dwelling should have the windows so arranged that some time during the day, a flood of sun-light will force itself into the apartment. The importance of admitting the light of the sun freely to all parts of our dwelling, cannot be too highly estimated. Indeed, perfect health is nearly as much dependent on pure sun-light as it is on pure air."

"Sun-light should never be excluded, except when so bright as to be uncomfortable to the eyes. And walks should be in bright sun-light, so that the eyes are protected by veil or parasol, when inconveniently intense. A sun-bath is of far more importance in preserving a healthful condition of the body than is generally understood. A sun-bath costs nothing, and that is a misfortune, for people are deluded with the idea that those things only can be good or useful which cost money. But remember that pure water, fresh air, and sun-lit homes, kept free from dampness, will secure you from many heavy bills of the doctors, and give you health and vigor, which no money can procure. It is a well-established fact, that people who live much in the sun are usually stronger and more healthy than those whose occupations deprive them of sun-light. And certainly, there is nothing strange in the result, since the same law applies with equal force to nearly every animate thing in nature. It is quite easy to arrange an isolated dwelling so that every room in it may be flooded with sun-light some time during the day, and it is possible that many town houses could be so built as to admit more light than they now receive."

Lubrications. — The *Young Scientist* remarks that the efficiency of lathes, scroll-saws, sewing-machines, and even watches, often depends upon the judgment and care in selecting a lubricator, and this choice is frequently ill-made. Common kerosene oil is, too often, injudiciously used in place of a thicker or more bland oil, because the heat produced by friction rapidly vaporizes the oil and leaves the journal dry. Crude petroleum, for the same reason, is only fitted for very slowly-revolving journals, such as water-wheels. For very heavy machinery, or for gearing, tallow and black lead, rubbed up together, is the best lubricant, and also the best for wagon and carriage-axles during hot weather. For light running machinery, sperm oil is the best; good olive oil, that has not become rancid and acid, is perhaps the second best, and for winter use lard oil is excellent, but is rather too drying to be a first-class lubricant. Castor oil is better for axles in the winter, and black lead with it is a help at at any time.

The Oldest Church in the United States.—Just east of the Indian House, Santa Fé, stands San Miguel Church, one of the oldest churches in the United States, It is supposed to have been built about the year 1640. During the insurrection by the Pueblo Indians in 1680, it was destroyed by them. It was rebuilt as it now stands in the year 1610 by the Marquis de la Penuela, through his agent, Don Augustin Flores Vergara, as is shown by an inscription on a rudely carved old beam supporting a small gallery over the door to the church. It is built of adobe on a foundation of small stones laid in mortar. Its length is 100 feet, the width is 60 feet, and the hight is 40 feet. It is in a pretty good state of preservation, considering its great age. The walls on the inside are high, whitewashed, and run to a sharp peak. There are a few little low benches, a dome-shaped altar containing the usual ornaments of a Catholic church, and on each side a painting of great antiquity. The walls are lined with a number of paintings representing the various stages of the crucifixion of Christ.—*American Architect and Building News.*

The Meteoric Shower of August 18, 1880.

On the night of the 10th of August the earth in its orbital revolution passed through the "meteoric zone." Observers throughout the country were on the lookout, and when twilight came had everything ready for conveniently noting each phase of the anticipated phenomena. From personal observations of this and several other meteoric showers of corresponding date, I am prepared to say this was one of the most interesting that has occured for several years. From 9.30 until 10.00 P. M., the number of meteors, according to the best estimate I could make, was six per minute.

For a time after ten o'clock the numbers perceptibly diminished, and near midnight again became more numerous. I regret that I could not observe this interesting phenomenon after midnight, for without doubt the finest part of the display took place at that time.

In point of numbers, the display of 1880 as I observed it was not inferior to that of 1875; but in brilliancy it fell far below it. The larger number of meteors on this occasion seemed to be in the direction of Ursa Major. I saw nothing unusual in regard to their apparent velocity or the direction of their flight. Very few of them were either marked by any red color or left any visible train of light.

Quite a large number of meteors were visible on the evening of the 11th, also on the 9th, some of which surpassed in brilliancy any that appeared on the night of the 10th.

I have neither the ability nor the disposition to enter into any speculations concerning these erratic bodies. Although much has been learned and satisfactorily explained regarding their composition, a definite knowledge of their origin has not yet been obtained.—*Prof. S. A. Maxwell, Morrison, Ill.—Kansas City Review.*

Preventive Measures.

The New York *Sun*, in alluding to the nonappearance of yellow fever at the South, remarks that no credit is due to the National Board of Health for this fortunate result. We doubt both the truth and justice of this assertion. Admitting that the powers and jurisdiction of the Board are limited, and that, even were they quadrupled, it would still be possible for an epidemic to break out in a score of places, North and West as well as South; yet the fact is undeniable, that through the efforts of the Board preventive measures have been taken in Memphis and New Orleans, and a number of other places where infection lay dormant, which have greatly promoted the public health. The work which the National Board has begun the past year has already accomplished potent results, and will lead to others of still greater importance in the future. The man who raises levies and builds fortifications to resist armed invasion should receive due credit if the invasion was postponed or prevented by these preparations for defense. It is just here that injustice in giving credit to the Board for what it has done is harmful, because it destroys or lessens its power of usefulness for the future. Because we may have escaped yellow fever one year, we must not shut our eyes and rest supine. The snake is scotched, not killed, and as we have got to fight it out on this line for many summers, we must not slight or belittle the service of any ally.—*The Plumber and Sanitary Engineer.*

THE LATE BENJAMIN FERREY.—Mr. Benjamin Ferrey, who died in London on Sunday last, in his seventy-first year, was one of the most eminent agents in the early days of the Gothic revival. As a church-architect he has not been excelled, and many of his buildings have the grace of ancient examples. Mr. Eastlake wrote in 1872: "His architectural taste was for years in steady advance of his generation, and as an authority on church-planning and general proportions, he had scarcely a rival. His work possessed the rare charm of simplicity, without lacking interest. By the use of carefully-studied moldings, and a spare but judicious introduction of carved ornament, he managed to secure for his buildings a grace that was deficient in many contemporary designs, which had been executed with far more elaborate decoration and at greater cost. His country churches are especially notable for this reticent quality of art."—*The Architect.*

ELEVATORS IN MILAN CATHEDRAL.—After illuminating Vesuvius with the electric light (one of our correspondents writes to us), a company is now forming for establishing lifts to ascend to the roof of the Milan Cathedral. The company undertake, in addition, to illuminate the roof *a giorno* at all seasons, and to place a large clock with four faces at the foot of the Madonna on the summit; the clock will be lighted at night. Arm-chairs, telescopes, and probably light refreshments, are to be provided on the terraces of the roof for the benefit of those who have come up in the lifts, which are to work night and day; and perhaps when all this is done, the company will add a band of music and give masked balls during Carnival on the roof. The lifts are to be ready for the time of the National Exhibition, if permission for them is obtained; but that formality has yet to be gone through, and it is probable that the Chapter will not take the same view of their cathedral as the promoters of the company in question.—*St. James' Gazette.*

THE COLOGNE CATHEDRAL.—A Berlin dispatch to the London *Tymes* says: "By a Cabinet order the Emperor has appointed the 15th of October next as the date for the ceremonious consecration and opening of the lately finished Cologne Cathedral, when his Majesty and most of the members of his house, together with other distinguished persons, will honor the occasion by their presence. The date appropriately selected is the birthday of Frederick William IV, the Emperor's deceased brother, to whose piety and love of art was due the resumption of the architectural labors which were so auspiciously brought to an end about a fortnight ago. Curiosity, of course, is busy conjecturing whether the rejected Archbishop will reappear with all his clergy in their robes of office, but in any case, the ceremony will be solemn and imposing as recording the triumph of German perseverance and German art. Viewed from a financial point of view, the noble edifice represents an enormous amount of capital. It is calculated that the sums applied to its completion since 1821 from public and private sources must amount to about 18,000,000 marks, which, added to the previous outlay, will give a grand total of 40,000,000 marks, or over £2,000,000."—*American Arch. and Building News.*

AN UNKNOWN VANDYCK.—It is said that the art-gallery in the old Museum in Berlin is likely to be enriched with a valuable original of an old master. It appears that a certain Count, when looking over the effects of his deceased father, at his residence at East Prussia, discovered a "Christ" that had long hung in an unfavorable light in the work-room of the late Count. The painter was unknown, but an instinctive art-feeling led the young Count to have the picture removed to his house in Berlin. Some time ago an Englishman appeared who offered £5,000 for the picture. In consequence, however, of his persistently pressing for an immediate decision, the Count became suspicious and declined the proposal. The Crown Prince, hearing of the incident, sent some connoisseurs to inspect the painting, who pronounced it a valuable Vandyck, though the minor details might possibly have been worked in by his pupils. The management of the Berlin Museum is now in treaty for the purchase.—*American Architect and Building News.*

Effect of Perfumery on Health.

An Italian professor has made some very agreeable medical recearches, resulting in the discovery that vegetable perfumes exercise a positively healthful influence on the atmosphere, converting its oxygen into ozone, and thus increasing its oxidizing influence. The essences found to develop the largest quantity of ozone are those of the cherry, laurel, clover, lavender, mint, juniper, fennel, and bergamot; those that give it in smaller quantities are anise, nutmeg and thyme. The flowers of the narcissus, hyacinth, mignonette, heliotrope and lily of the valley develop ozone in closed vessels. Flowers destitute of perfume do not develop it, and those which have slight perfume develop it in small quantities. Reasoning from these facts, the professor recomends the cultivation of flowers in marshy districts and in all places infested with animal emanations, on account of the powerful oxidizing influences of ozone. The inhabitants of such regions should, he says, surround their houses with beds of the most odorous flowers.—*The Mechanic.*

TROUBLE still continues about the Tay Bridge. For some time workmen have been engaged, under Mr. Barlow, C. E., in sinking an experimental cylinder, at the west side of the bridge, for the purpose of examining the strata of the bed of the river at a depth of from 20 to 30 feet. Some large piles had been driven and the staging almost complete, when on the evening of the 6th ult., a very violent gale sprang up, sweeping the staging entirely away and leaving only the bare piles standing. Nobody hurt.

Our contemporary, the *British Architect and Northern Engineer*, in commenting upon the action of the parliamentary committee, in "referring back for further consideration" the matter of the reconstruction of the Tay Bridge, suggests, that, looking to the evidence given at the inquiry as a criterion of the knowledge of the English engineers on the science of bridge building, those interested had better retain the services of a few American engineers. This is a warm compliment which will be duly appreciated by American bridge engineers, and it evidently shows that the science of bridge building as practiced in this country is attracting the studious attention of our British cousins.—*The American Engineer.*

Why Our Imports are Worth Sixty-five Million Dollars.

Judged by its imports, California should be either one of the most backward or otherwise the richest of lands. She imports and distributes not less than $65,000,000 worth of goods annually, an average of $65 per head for every man, woman and child amongst whom her wares are sold. At a rate like this, the imports of the United States should be $3,250,000,000; those of Great Brttain close on $2,000,000,000; those of other nations in like proportion.

Now, rich as California is, she is not rich enough to render it necessary for her to spend so much per annum in goods purchased outside her own border. The imports of the United States as a whole are about $13 per annum per head; those of California should hardly be more. Taking this from what the per capita of imports really is, we find that we import $52 per head per annum more than we ought, or that we send East and abroad a sum of $52,000,000 a year that we should have kept at home.

We are therefore behind in manufactures to the extent of $52,000,000 and upwards per annum. It is not necessary to enter into calculations to show that this amounts to $1,000,000,000 in 20 years. It is sufficient to know that we send abroad every year an amount equal to the value of our wheat and wine crop and wool crops combined. Thus the labors of all our wheat and wool growers and vine-growers are expended in supplying 1,000,000 people in California, Oregon, etc., with goods that we might and could manufacture for ourselves.

The greater part of all that we wear, from the silks of the *grand dame* to the cottons of the poorer woman, and from the rough clothes of the artisan to the broadcloth of the merchant, is imported. The iron that we need for machinery and the hardware needed in buildind and farming operations, as well as most of the agricultural machinery, comes in the same way. So does a great part of the furniture that fills our houses; the material of the bedding that we sleep on; the books that we read; the table service and what we have on the table, outside of the milk, bread and meat, comes similarly from abroad. Thus our hats were made in the East; our shirts were made in the East; our vests and pants were Eastern made, so were our boots; we whittle with an Eastern penknife; drink our coffee ont of an Eastern cup; get the news from paper made in Eastern mills; sit on Eastern furniture; sleep on Eastern beds; read Eastern books, and go to hear Eastern lecturers. And a great deal of what is not Eastern is foreign.

We have therefore little to exchange with foreign countries that we have not already bought of other people, and they can step in and sell as cheaply to them as they sold them to us, and our prospective trade vanishes. We must get rid of these Eastern leading strings before we can make the headway we ought in a commercial sense.—*San Francisco Journal of Commerce.*

Our Illustrations

Present the floor-plans and front elevation of a one-story cottage, which explain themselves. Such a tenement can be built at a cost of from $2,000 to $3,000, according to style and expensiveness of finish, etc.

Some of our readers may think that we should define more minutely the cost of building. But it appears to us that every intelligent person must understand that it is a very easy matter to vary costs, and when the minimum and maximum amounts are given, that should be sufficient. A building covering no more ground than the plans presented, might be made to cost $10,000.

The "Ebony Inlaid Cabinet" is of European design, manufaotured by S. Coco of Florence.

B. E. Henriksen's Safety Clutch.

The annexed cut is an illustration of *B. E. Henriksen's Patent Automatic Safety Clutch for Elevators*:

This safety clutch consists of two upright trip levers each provided with a solid rubber roller at the top; and mounted at the bottom on a horizontal shaft secured to the frame of the cage and supporting two toothed cams or dogs. A corrugated strip of wood or cleat is applied to one side of each of the guide posts of the elevator, in such a manner that the rollers on the trip levers will be caused to rotate along their corrugated face. At the ordinary rate of speed these rollers pass over the projections and fall back in their places by reason of their weight and position, but any excess of speed caused by the fall of the elevator brings the rollers in violent contact with these projections, which throwing the levers outward causes the cams or dogs to engage into the guide posts, thus forming a wedge or brake which instantly stops the cage. The action of this safety clutch is such that the more rapid the fall, the quicker the action; the heavier the load, the tighter and firmer the grip.

Mr. Henriksen, at the last Mechanics Institute Fair, had a full size elevator in operation, in order to demonstrate the particular working of his invention. This elevator contained a load of about 600 or 700 pounds, the average load of ordinary elevators. The cage was run up and down at the usual rate of speed; then a brake was opened and the cage permitted to fall violently as if the cable or some part of the machinery had broken. This caused the clutches to perform their duty by instantly stopping the cage. These tests were made from four to twelve times every night for four weeks, but the safety clutch never failed to act.

This form of clutch is to be preferred to those whose action depends upon springs, or upon the breaking of the main cable. All the elevator accidents which have occured up to this present time have been caused by some defect in the machinery; we have yet to hear of any caused by broken cable. The following are among the advantages possessed by this safety clutch over all others. It has no springs, tumblers, nor triggers, liable to become gummed, stiff, or otherwise unreliable.

It will work as well on an empty cage as upon one loaded to its utmost capacity. The elevator of the Johnson Building, No. 120 Sutter street, which was prevented from falling by one of these clutches on August 17th, 1880, contained six persons, weighing 900 or 1100 pounds, (nobody hurt). The elevator of the California Furniture Factory, 224 Bush street, which was stopped from falling on September 28th, 1880, contained a load of furniture, a large plate mirror and the elevator boy, about 400 pounds in all, (no damage).

This safety clutch in in use at the

Johnson Building	120 Sutter street,
Thurlow Block	126 Kearny street,
San Francisco Stock Exchange	Pine street,
Haker & Hinz	545 Market street,
W. & Y. Sloan	522 Market street,
J. Cerf & Co	517 Market street,
W. Cohn & Co	Battery and Bush,
California Furniture Co	224 Bush street,
New City Hall	
Halleck Block	Halleck and Sansome,
Levi, Diamant & Co	107 Battery street,
Franco American Perfumery Co.	109 Battery street,
P. Berwin & Co	111 Battery street,
Pioneer Woolen Mills	115 Battery street.

☞ *Mr. Henriksen received the* SILVER MEDAL *awarded by the Mechanics Institute for the best Safety Clutch exhibited during the last Fair.* *3m.

Market Reports.

GLASS.—The "shutting down" of the Belgian aud American factories for several months past, and the increased consumption of glass, have almost denuded the market of all small sizes, as well as dwelling-house size, double thick. There are two vessels on the way, one being out 123 days and the other 128 days, with a supply on board, but not enough for the market. One of our largest firms in place of receiving consignments as per orders of 100 boxes of one size, 150 of another, etc., has to be content with getting 10 of one, 5 of the other, etc., with the assurance written on his bills, that the "rest will shortly follow." This shows that New York firms are short of this stock on hand as well as our own. We report glass very firm, with an increase of price since our last.

PAINTS.—Demand for paints of all kinds is very active, but prices remain about the same as last issue.

LUMBER AND HARDWARE.—No change in the prices of lumber. Shingles have advanced 25 cents per thousand. Nails have declined 25 cents a keg but the market is very firm. The stock of 8s and 12s, in first hands is almost exhausted. All kinds of hardware are in active demand, but the prices remain the same as our last. The total imports of nails since January 1st, is 119,281 kegs, and 2,285 half kegs.

OREGON PINE.

Common Rough, up to 40 feet, per M feet		$20 00
"	40 to 50 " "	21 00
"	50 to 60 " "	22 00
"	60 to 70 " "	23 00
"	60 to 80 " "	24 00
Refuse Rough		16 00
Common Rough, sized with planer $2 additional on above rates, per M feet.		
No. 1 Flooring, 6 inches and over, and Stepping	per M feet	27 50
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring	per M feet	30 00
Rough Clear for flooring, $1 less than above rates, per M feet.		
Second quality Flooring and Stepping, per M feet		22 50
Ship Plank, rough	per M feet	25 00
" planed 1 side	"	28 00
" planed 2 sides	"	30 00
Deck Plank, rough	"	28 00
" dressed	"	32 50
Laths	per M	3 50

REDWOOD.

Rough Merchantable	per M feet	$20 00
" Refuse	"	16 00
Surface, No. 1	"	30 00
Surface, 1 x 8	"	30 00
" 1 x 6	"	28 00
" No. 2	"	22 50
Rustic, No. 1 1 x 8	"	28 00
Rustic, No. 2	per M feet,	$25 00
" 1 x 10	"	30 00
Rustic, short, 8 to 10 feet	"	$25 00
" " under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
" " No. 2	"	20 00
" Beaded, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
Half-inch Surface	"	27 50
Pickets, fancy	"	20 00
" rough, pointed	"	16 00
Pickets, rough, square	per M feet	$14 00
Siding, ½-inch	"	20 00
Port Oxford White Cedar per M feet		$30 00 to 45 00
Sugar Pine	"	30 00 to 50 00
R. W. sawed shingles	per M	2 25
Battens, ½-inch		75

HARDWARE AND NAILS.—We note the following prices:

10 to 60 pennies, are quoted at					$4 00
8	"	"	"	"	4 25
6	"	"	"	"	4 50
5 and 4	"	"	"	"	4 75
4 and 5 pennies, brad heads at					5 25
6	"	"	"	"	5 50
8	"	"	"	"	5 25
10 and upward	"	"	"	"	5 00
3 penny fines	"	"	"	"	7 50

LUMBER.

We are indebted to the *S. F. Journal of Commerce* for the following very full report of receipts and exports of lumber:

Receipts since our last—6,590,096 feet lumber, 734,000 shingles, 1,949,100 laths, 313 cords wood, 17 cords Stave Bolts, 30,000 shakes, 1,500 Staves, 1,558 bundles hoops, 784 Piles.

Total receipts since January 1st:

Lumber, ft	144,256,115
Shingles, No.	51,806,032
Laths, No.	13,643,800
Wood, cds	18,611
Piles, ft	26,000
" No.	4,914
Cedar, logs	3,485
" ft	72,980
Rosewood, logs	32
Shakes	1,324,625
Pickets, No.	20,000
Hoops, bdls	8,724
Headings, bdls	58
Staves	13,799
" bdls	1,485
" cds	23
Railroad Ties	255,129
Posts	361,983
Sugar Pine, ft	2,190,000
Barrel St'k, pkgs	27,580½
Spars	90
Wool Slats	74,000
Stave-bolts	78,000
" cds	317
Telegraph Poles	1,508

Receipts during the past week have been heavier than in some time. The agreement on price of the Redwood lumber dealers expires on December 1st, and of the Pine lumber men on January 1st. There is considerable grumbling on the part of the first. If they do not hold well together prices are likely to go down. The market is quiet, but hopeful. Pending next Spring there will not, however, be any active demand. The only change in prices during the week has been an advance of 25 cents in Shingles.

Exports of Shooks since our last:

		Value.
Oct 6	Newbern, Mexico, 78 pkgs	$54 00

Exports of Lumber since October 1st:

		Feet.	Value.
Oct 2	Bremen, Liverpool	20,000	$400 00
2	Challenger, Queenstown	20,000	400 00
4	Lake Superior, Cork	20,000	400 00
4	City of Bombay, Liverpool	16,000	320 00
6	Newbern, Mexico	1,123	90 00
7	Agnes, Cork	5,000	100 00
7	Dunnerdale, Liverpool	12,000	240 00
7	Rona, Queenstown	13,000	260 00
8	M. P. Grace, Liverpool	35,000	700 00
8	Standard, Liverpool	27,000	550 00
9	Bedfordshire, Queenstown	15,600	310 00
Total		184,723	$3,770 00

CEMENT, PLASTER, LIME, ETC.

Imports since our last: Per Marlborough, 2,700 bbls.

Total imports since January 1st: 51,898 bbls, 6,280 csks Cement, 103,280 Firebrick, 2,500 bbls Plaster.

Receipts of California Lime since our last: 2,140 bbls. Total since January 1st, 95,728 bbls.

The Marlborough brought 2,700 csks of Portland Cement. The quantity of Cement is quite large. The reason of the heavy importation this year is supposed to be an impression that there will be heavy building operations next year and that the market will be high. They are now buying while it is low.

We quote Eastern Cement, Rosendale, $2 25@ 2 50; other $2 12½; Portland Cement, $4 50@5 25, as to quality and brand. Plaster—Eastern, $3 25@ 3 50; do Golden Gate, $2 75@3 00; Lime, Santa Cruz and Sacramento, $—@1 50; Firebrick, $35@ 40—jobbing at $40@50 as to brand. California Brick—Hard, $10@12; Soft, $7@8; Red, $9@10.

Building Intelligence.

Still the good work goes on, and the cheerful sight of new buildings going up in every direction, greets the eyes of our citizens and mechanics. We have received notices of improvements under way from every part of the State; and right here we would say, that our thanks will be the more cordially given to our informants if they will be a little more particular, and give us the names of owners, contractors, and architects, as well as cost of the different buildings which are brought under their observation. From the number of plans now being drawn in the offices of the different architects in this city, we will be enabled next month to give our readers a list of buildings that will do their hearts good. We are threatened with one drawback, however, and that is a want of skillful carpenters and masons. Not only does this city lack the former, but Oakland and several of the interior towns have the same complaint. We know of a large-hotel proprietor who will delay building just on this account. He wants to build by day's work, and seems afraid that wages will "go up" on him. It will be a good thing for every one, when skilled labor demands the wages it justly deserves, as most of our carpenters have not earned enough in the past three years to keep their chests supplied with the latest improvements in tools, let alone a nice Sunday-suit, and plum-puddings with "slicks-ins" for their dinners.

SAN FRANCISCO.

Alterations and additions to the Grand Western Market on Polk street, and running through from Bush to Austin. Owner, Capt. Thos. G. Taylor; architects, Wolfe & Son. Cost, about $3,000. Day's work.

Two-story dwelling with brick basement in the Willow District, near San Jose. Owner, Mr. M. Simons; architects, Wolfe & Son. Owner furnishes materials. Labor by contract. Cost, about $3,500.

Dwelling on Oak street west of Buchanan. Owner, —— Lambert; architect, Jos. Gosling; contractor, T. J. Hamilton. Cost, $3,700.

Alterations to building on Hyde street near Pine. Owner, Charles Broad; contractor, T. J. Hamilton. Cost, $1,500.

Alterations to house 1939 Clay street. Owner, Mrs. Dr. Perrif; architect, Augustus Laver. Day's work; to cost about $500.

Two-story frame dwelling and basement on Valencia near Hill street. Owner, G. Freidrich; architect, H. D. Mitchell; contractor, J. J. Macready. Cost, $3,500.

Chinese Chapel, 19x30, on Laguna near Pine street. Built by the Congregational Denomination; Rev. W. C. Pond, manager; Sheldon, contractor. Cost, $750.

Two-story and basement frame building for wagon and blacksmith shop, on Post street between Jones and Leavenworth. Owner, —— Artfort; contractor, —— Ehrman. Cost, $1,400.

Two-story and basement frame dwelling on Bryant street, west of 3rd. Owner, M. Lynch; builder, M. Lynch. Day's work.

Two-story and basement frame building on Ritch street, between Brannan and Townsend. Owner, E. Quigley; architect, T. J. Welsh; contractors, Smith & Laherty. Cost, $1,900.

Alterations of building on north side Pacific street between Leavenworth and Hyde. Owner, W. Haley; contractor, E. Whitcomb; architect, T. J. Welsh. Cost, $1,421.

Alterations and repairing of house on Van Ness avenue near Broadway. Owner, Father Callahan; architect, T. J. Welsh; contractor, J. McCann. Cost, $1,200.

One-story and brick basement on Leavenworth street between Washington and Jackson. Owner, R. Day; architect, T. J. Welsh; contractor, Smith & Laherty. Cost, without brick foundation, $1,675.

Four-story frame dwelling with brick basement on corner of Octavia and Haight streets. Owner, J. Nightingale; contractor, J. O'Brien; architect, —— Bordwell. Cost, $——.

Stable on Kimball place, near corner Leavenworth and Sacramento streets. Owner, E. E. Eyre; architect, J. Marquis; contractor, S. S. Emory. Cost, $1,800.

Additions to residence on Sutter street near Leavenworth. Owner, E. E. Eyre; architect, J. Marquis; contractor, S. S. Emory. Cost, $2,800.

Two-story frame building and meat-market on corner of 24th and Guerrero. Owner, —— Leib; architect, —— Bordwell; contractor, A. Jackson. Cost, $2,600.

One-story and basement cottage on Alabama street between 25th and 26th. Owner, Krull; contractor, —— Kruger. Cost, $800.

Two-story frame dwelling on Bryant avenue between 25th and 26th streets. Owner, Mrs. Grother; contractor, —— Thompson. Cost, $ ——.

One-story and basement frame dwelling on Treat avenue between 24th and 25th streets. Owner, J. Hennessey; contractor, R. Doyle. Cost, $1,000.

Alterations of brick dwelling into stores on Geary street, between Dupont and Stockton. Owner, David Hunter; day's work. Cost not determined.

Three story frame building in connection with Saratoga Music Hall, 812 Geary street, between Hyde and Larkin. Contractor, B. Dryer. Cost, ——

Stores, 12 and 14, Sixth street, recently destroyed by fire, have been repaired by contractor B. F. Ellis, at a cost of about $500.

Two two-story double tenements on Minna street, between Sixth and Seventh. Owner, John Sullivan; day's work.

Additional story and repairs to building, 733 Minna street, near Ninth. Owner, D. McDonald; contractors, Terrill & Slaven. Cost, ——

Additions and alterations of building No. 1611 Stevenson street. Owner, J. Creamer; contractor, T. J. Hamilton. Cost, about $2,400.

Two-story frame dwelling on Van Ness Avenue near S. E. corner Bush. Architect, H. C. Macy. Owner, J. Baum; contractor, F. Klatt. Cost, $6,000.

Alterations and additions to house 1409 Leavenworth street; day's work. Owner, John Wise.

Dwelling No. 1608 Larkin street, is being altered and improved.

Brick foundation to house 1205 Jones street; Masons, Sundford & Lundborg; day's work.

Dwelling on corner of 23rd and Mission. Owner, L. Foge; architect, W. Winterhalter; builder, H. Thom Wohrden. Cost, about $4,000.

Addition to house on N. E. corner Stockton and Post streets.

Additions and alterations to house on Bryant street near Second.

OAKLAND.

Stores and dwellings on Central Avenue, corner of 11th avenue, East Oakland. Owner, Chas. Jurken; architects, Matthews & Son; contractors, Hill & Dale. Cost about $8000. Left out of our last by mistake.

Additions to house 366 East Fourteenth street, East Oakland. Day's work.

Rebuilding of Galindo Hotel, on corner of 8th and Franklin streets, Oakland. Contractor, Mc Killican. Repairs will cost in the neighborhood of $28,000.

MENLO PARK.

A greenhouse at the residence of J. C. Flood. Architect, Augustus Laver; contracter, Chas. Ackerson. Cost $1,200.

ALAMEDA.

Two story and basement on Chestnut street, near Santa Clara avenue. Owner, Convent of Notre Dame; architect, B. J. Clinch; contractors, Terrill & Slaven. Cost $10,000.

One story building on Park street, for store. Owner, Burns. Cost $500.

Cottage dwelling on Rail Road avenue, near Stanton. Owner, Mrs. Kirk; contractor, F. Bravens. Cost about $800.

Two story frame on Willow street, near Rail Road avenue. Owner, J. Ayer; contractor, J. C. Stark. Cost $1,500.

Frame building for grocery, on corner of Santa Clara avenue and Bay streets; contractor, Chas. Barthman.

Dwelling on Pearl street. Owner, Thomas Bayzer. Cost about $5,000.

A barn is being erected by Mr. Noy at Bay street station.

GENERAL INFORMATION.

There are a great many buildings in process of erection all over the State. We are making arrangements by which we will be enabled to give our readers a complete synopsis of all improvements in this line. At Healdsburg, Mr. R. Powell is erecting a large two story barn by day's work. Mr. Reynolds is putting a new building and repairing an old one a few miles north of Healdsburg, under the superintendence of A. Blackinton. A new stable to take place of one recently destroyed by fire, is being erected for Mr. Cummings, at same town.

A Catholic Church is in process of erection at Colusa.

Large warehouse at Watsonville is almost completed.

Several buildings are going up in and near San Rafael.

Starr & Co. have been building large warehouse at Vallejo.

Stockton, Marysville, Sacramento, San Jose, Los Angeles, &c., report increased activity in building line, and all predict a good Fall and Winter trade.

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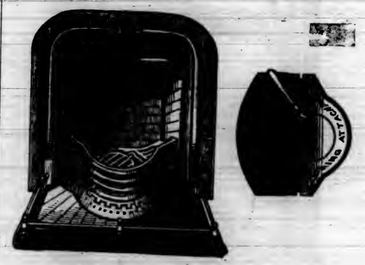

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The *Cooking attachment* is a great novelty of itself, and can be used with perfect impunity in any room in the house, as all gas and smoke is carried up the chimney. It needs no comment—its merits are seen at a glance.

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The California Architect and Building Review.

VOLUME I. NUMBER 11. SAN FRANCISCO, NOVEMBER, 1880. $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect

—AND—

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

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for time spent in securing additional names to our Subscription List. We want, by the commencement of our Second Volume, in January, 1881,

NOT LESS THAN TEN THOUSAND CASH SUBSCRIBERS.

With this accomplished, the first number of Volume No. 2 will introduce a Journal which, in positive merit and beauty, shall justify and deserve the highest approbation, and be, in fact, A CREDIT TO SAN FRANCISCO, as the place of its publication. We therefore appeal to

THE CITIZENS OF SAN FRANCISCO AND THE ENTIRE PACIFIC COAST,

and to our friends and well-wishers east of the Rocky Mountains, to assist by their subscriptions and personal influence in the permanent establishment of the FIRST AND ONLY ARCHITECTURAL JOURNAL ever published west of the great natural ridge which, to a certain extent, segregates California from the commonwealth of States.

OUR CLUB RATES ARE LIBERAL.

Industrious and competent canvassers will be able to Earn from $3 to $5, or more, per day. Send for Club Rate Circular.

The Future of this Journal.

We trust that our kind patrons and readers will pardon what may appear to them as frequent reference to this journal. The object of such repeated reference is to attract the attention and enlist the sympathy and support necessary to enlarged success in the future. We have done well in matters known and understood only by ourselves, but the well-doing most earnestly desired is that which reaches far beyond our personal gratification, and encompasses us with that approbation and commendation which attends those who render service worthy of appreciation.

The fact that this journal is approaching the end of its first volume—or, more properly, its second, as the four quarterly issues of 1879 in fact constituted the first volume—it is necessary that we remind our patrons of six *facts*:

First. That their subscriptions will terminate with the December number.

Second. That renewal of subscription before the first of January for the year 1881 is most respectfully requested.

Third. That we contemplate and promise large improvements in volume No. 2, and feel encouraged thereto by the liberal subscription and advertising patronage extended during the year now nearly ended

Fourth. The expenses of publishing a journal such as we have produced have been large, and will be greatly increased by the improvements contemplated, which fact will render it necessary to make the FUTURE SUBSCRIPTION PRICE $2 PER ANNUM.

Fifth. That it is rulable, and to us necessary, that all subscriptions should be paid in advance. It is only necessary that one should enjoy a little practical experience in the publication line to establish the fact of the fairness and propriety of this almost universal custom of payment. And as we expect to expend nearly the entire receipts of this journal in its improvement during the coming year, we trust that all our friends will cheerfully pay their subscriptions promptly, on or before the first of January, 1881.

Subscribers will please send their names and address, plainly written, by postal or letter, or otherwise, as convenience may offer. Send the $2 subscription by postal money order, direct to this office.

SOME one has said, what thousands have observed, that there is nothing keeps longer than a middling fortune, and nothing melts away sooner than a great one. Poverty treads upon the heels of great and unexpected riches.

A Board of Public Works.

That such a board, composed of honest, capable, and practical men, would subserve and protect the interests of this city, cannot be questioned by any intelligent person. Still, there is a general aversion to the creation of such an auxilary in our municipal affairs, for reasons well understood, and humiliating to our common humanity in character. Were the objections founded upon the absence of necessity, or impracticability of such an arrangement, a second thought would not arise in reference thereto; but the fact that such opposition is based mainly upon an almost universal mistrust in the honesty of men—a mistrust sustained by ten thousand facts known to every well-informed mind—it gives rise to feelings of regret that our enlightened and advanced civilization, while it teaches correctness, purity, and worthiness in every sense, under its influence and beyond its teachings, rascalities in every form have developed themselves to such an extent that doubt and fear surround every suggestion which proposes to confide great interests into a few hands, when the possibilities of manipulations and peculations appear.

Under this condition of things, the question naturally arises, is there not a sufficient number of honest, upright, trustworthy men in San Francisco to discharge faithfully and conscientiously the duties implied by the term Board of Public Works? We answer unhesitatingly, yes; but as a rule, such men pursue a quiet course of life, preferring the pleasures of those pursuits which are free from the many disagreeable suspicions and surroundings which follow men who thrust themselves upon the people through political intrigue and strong party influence.

It is because such positions have more generally fallen into the hands of corrupt, unscrupulous politicians, who have used the opportunities opened up by the office to perpetrate innumerable dishonesties, the reposal of confidence by the masses is withheld. If the public were convinced that there would be fair dealing, and that frauds and plunderings of the public treasury would not be perpetrated, the objections to intrusting important works to a few men would cease.

If such a board had heretofore existed, with a continuance of powers up to the present time, San Francisco would have been spared a greater part of all the many scandals that have grown out of the acts of the political party governed by incompetents who have had control of the people's interest in that "sweet plum," the New City Hall.

CEMENT, PLASTER, LIME, ETC.

Imports since our last: Per Marlborough, 2,700 bbls.

Total imports since January 1st: 51,898 bbls, 6,280 csks Cement, 103,280 Firebrick, 2,500 bbls Plaster.

Receipts of California Lime since our last: 2,140 bbls. Total since January 1st, 95,728 bbls.

The Marlborough brought 2,700 csks of Portland Cement. The quantity of Cement is quite large. The reason of the heavy importation this year is supposed to be an impression that there will be heavy building operations next year and that the market will be high. They are now buying while it is low.

We quote Eastern Cement, Rosendale, $2 25@ 2 50; other $2 12½; Portland Cement, $4 50@5 25, as to quality and brand. Plaster—Eastern, $3 25@ 3 50; do Golden Gate, $2 75@3 00; Lime, Santa Cruz and Sacramento, $—@1 50; Firebrick, $35@ 40—jobbing at $40@50 as to brand. California Brick—Hard, $10@12; Soft, $7@8; Red, $9@10.

Building Intelligence.

Still the good work goes on, and the cheerful sight of new buildings going up in every direction, greets the eyes of our citizens and mechanics. We have received notices of improvements under way from every part of the State; and right here we would say, that our thanks will be the more cordially given to our informants if they will be a little more particular, and give us the names of owners, contractors, and architects, as well as cost of the different buildings which are brought under their observation. From the number of plans now being drawn in the offices of the different architects n this city, we will be enabled next month to give our readers a list of buildings that will do their hearts good. We are threatened with one drawback, however, and that is a want of skillful carpenters and masons. Not only does this city lack the former, but Oakland and several of the interior towns have the same complaint. We know of a large-hotel proprietor who will delay building just on this account. He wants to build by day's work, and seems afraid that wages will "go up" on him. It will be a good thing for every one, when skilled labor demands the wages it justly deserves, as most of our carpenters have not earned enough in the past three years to keep their chests supplied with the latest improvements in tools, let alone a nice Sunday-suit, and plum-puddings with "slickins" for their dinners.

SAN FRANCISCO.

Alterations and additions to the Grand Western Market on Polk street, and running through from Bush to Austin. Owner, Capt. Thos. G. Taylor; architects, Wolfe & Son. Cost, about $3,000. Day's work.

Two-story dwelling with brick basement in the Willow District, near San Jose. Owner, Mr. M. Simons; architects, Wolfe & Son. Owner furnishes materials. Labor by contract. Cost, about $3,500.

Dwelling on Oak street west of Buchanan. Owner, —— Lambert; architect, Jos. Gosling; contractor, T. J. Hamilton. Cost, $3,700.

Alterations to building on Hyde street near Pine. Owner, Charles Broad; contractor, T. J. Hamilton. Cost, $1,500.

Alterations to house 1939 Clay street. Owner, Mrs. Dr. Perrif; architect, Augustus Laver. Day's work; to cost about $500.

Two-story frame dwelling and basement on Valencia near Hill street. Owner, G. Freidrich; architect, H. D. Mitchell; contractor, J. J. Macready. Cost, $3,500.

Chinese Chapel, 19x30, on Laguna near Pine street. Built by the Congregational Denomination; Rev. W. C. Pond, manager; Sheldon, contractor. Cost, $750.

Two-story and basement frame building for wagon and blacksmith shop, on Post street between Jones and Leavenworth. Owner, —— Artfort; contractor, —— Ehrman. Cost, $1,400.

Two-story and basement frame dwelling on Bryant street, west of 3rd. Owner, M. Lynch; builder, M. Lynch. Day's work.

Two-story and basement frame building on Ritch street, between Brannan and Townsend. Owner, E. Quigley; architect, T. J. Welsh; contractors, Smith & Laherty. Cost, $1,900.

Alterations of building on north side Pacific street between Leavenworth and Hyde. Owner, W. Haley; contractor, E. Whitcomb; architect, T. J. Welsh. Cost, $1,421.

Alterations and repairing of house on Van Ness avenue near Broadway. Owner, Father Callahan; architect, T. J. Welsh; contractor, J. McCann. Cost, $1,200.

One-story and brick basement on Leavenworth street between Washington and Jackson. Owner, R. Day; architect, T. J. Welsh; contractor, Smith & Laherty. Cost, without brick foundation, $1,675.

Four-story frame dwelling with brick basement on corner of Octavia and Haight streets. Owner, J. Nightingale; contractor, J. O'Brien; architect, —— Bordwell. Cost, $——.

Stable on Kimball place, near corner Leavenworth and Sacramento streets. Owner, E. E. Eyre; architect, J. Marquis; contractor, S. S. Emory. Cost, $1,800.

Additions to residence on Sutter street near Leavenworth. Owner, E. E. Eyre; architect, J. Marquis; contractor, S. S. Emory. Cost, $2,800.

Two-story frame building and meat-market on corner of 24th and Guerrero. Owner, —— Leib; architect, —— Bordwell; contractor, A. Jackson. Cost, $2,600.

One-story and basement cottage on Alabama street between 25th and 26th. Owner, Krull; contractor, —— Kruger. Cost, $800.

Two-story frame dwelling on Bryant avenue between 25th and 26th streets. Owner, Mrs. Grother; contractor, —— Thompson. Cost, $ ——.

One-story and basement frame dwelling on Treat avenue between 24th and 25th streets. Owner, J. Hennessey; contractor, R. Doyle. Cost, $1,000.

Alterations of brick dwelling into stores on Geary street, between Dupont and Stockton. Owner, David Hunter; day's work. Cost not determined.

Three story frame building in connection with Saratoga Music Hall, 812 Geary street, between Hyde and Larkin. Contractor, B. Dryer. Cost, ——

Stores, 12 and 14, Sixth street, recently destroyed by fire, have been repaired by contractor B. F. Ellis, at a cost of about $500.

Two two-story double tenements on Minna street, between Sixth and Seventh. Owner, John Sullivan; day's work.

Additional story and repairs to building, 733 Minna street, near Ninth. Owner, D. McDonald; contractors, Terrill & Slaven. Cost, ——

Additions and alterations of building No. 1611 Stevenson street. Owner, J. Creamer; contractor, T. J. Hamilton. Cost, about $2,400.

Two-story frame dwelling on Van Ness Avenue near S. E. corner Bush. Architect, H. C. Macy. Owner, J. Baum; contractor, F. Klatt. Cost, $6,000.

Alterations and additions to house 1409 Leavenworth street; day's work. Owner, John Wise.

Dwelling No. 1608 Larkin street, is being altered and improved.

Brick foundation to house 1205 Jones street; Masons, Sandford & Lundborg; day's work.

Dwelling on corner of 23rd and Mission. Owner, L. Foge; architect, W. Winterhalter; builder, H. Thom Wohrden. Cost, about $4,000.

Addition to house on N. E. corner Stockton and Post streets.

Additions and alterations to house on Bryant street near Second.

OAKLAND.

Stores and dwellings on Central Avenue, corner of 11th avenue, East Oakland. Owner, Chas. Jurken; architects, Matthews & Son; contractors, Hill & Dale. Cost about $8000. Left out of our last by mistake.

Additions to house 366 East Fourteenth street, East Oakland. Day's work.

Rebuilding of Galindo Hotel, on corner of 8th and Franklin streets, Oakland. Contractor, Mc Killican. Repairs will cost in the neighborhood of $28,000.

MENLO PARK.

A greenhouse at the residence of J. C. Flood. Architect, Augustus Laver; contracter, Chas. Ackerson. Cost $1,200.

ALAMEDA.

Two story and basement on Chestnut street, near Santa Clara avenue. Owner, Convent of Notre Dame; architect, B. J. Clinch; contractors, Terrill & Slaven. Cost $10,000.

One story building on Park street, for store. Owner, Burns. Cost $500.

Cottage dwelling on Rail Road avenue, near Stanton. Owner, Mrs. Kirk; contractor, F. Bravens. Cost about $800.

Two story frame on Willow street, near Rail Road avenue. Owner, J. Ayer; contractor, J. C. Stark. Cost $1,500.

Frame building for grocery, on corner of Santa Clara avenue and Bay streets; contractor, Chas. Barthman.

Dwelling on Pearl street. Owner, Thomas Bayzer. Cost about $5,000.

A barn is being erected by Mr. Noy at Bay street station.

GENERAL INFORMATION.

There are a great many buildings in process of erection all over the State. We are making arrangements by which we will be enabled to give our readers a complete synopsis of all improvements in this line. At Healdsburg, Mr. R. Powell is erecting a large two story barn by day's work. Mr. Reynolds is putting a new building and repairing an old one a few miles north of Healdsburg, under the superintendence of A. Blackinton. A new stable to take place of one recently destroyed by fire, is being erected for Mr. Cummings, at same town.

A Catholic Church is in process of erection at Colusa.

Large warehouse at Watsonville is almost completed.

Several buildings are going up in and near San Rafael.

Starr & Co. have been building large warehouse at Vallejo.

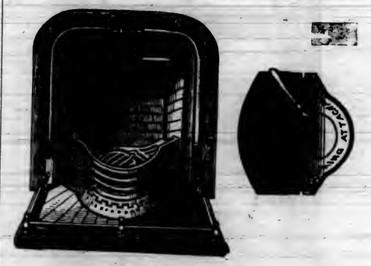
Stockton, Marysville, Sacramento, San Jose, Los Angeles, &c., report increased activity in building line, and all predict a good Fall and Winter trade.

THE VERY LATEST INVENTION

—AND—

IMPROVEMENT IN

GRATES.



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TRESSLER'S IMPROVED

Cooking and Parlor Mantel Grates

Are the very Best yet brought out.

As a HEAT PRODUCING and COAL SAVING Grate it has no equal.

Its great advantages are readily seen and admitted by all, and may be stated briefly as follows: It is a well-known fact that in grates of ordinary construction it is found impossible to keep the *fuel* at the further side of the grate in a good state of *combustion*, and that the fire is always brightest and best at its center; also, that it is a common practice to put in bricks at the ends of the Grate so as to confine the *fuel* more to the center, for reasons stated. With this *Improved Grate* all these objections are overcome. The peculiar shape of its sides and bottom directs the *fuel* from all sides *to the center*, as the fire settles down, and *no cold air* is allowed to enter and obstruct at the *ends or sides*. Another most important advantage of our Grate is, the combined shake and dump basket, with concave bottom, which clears the draught at once, while the coal is undisturbed. By this arrangement at least *one-third* more heat is obtained, with *less fuel*, and no waste whatever of coal.

The *Cooking attachment* is a great novelty of itself, and can be used with perfect impunity in any room in the house, as all gas and smoke is carried up the chimney. It needs no comment—its merits are seen at a glance.

The Grates are highly recommended by all the leading *Architects* of San Francisco, and are meeting with ready sale.

All orders or letters of inquiry to be addressed to

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The California Architect

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SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion	$1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion	1 25
On other inside pages, per square, each insertion	1 00

With reasonable reductions for larger spaces, and advertisements continued for six or 12 months.

A Card from Architects.

Believing a well and ably conducted journal, devoted to Architectural, Mechanical, Sanitary, Scientific, and other kindred matters and subjects, to be a necessity in this city, the CALIFORNIA ARCHITECT AND BUILDING REVIEW, published by the San Francisco Architectural Publishing Company supplies a long-existing want on this coast. *We therefore pledge our cordial sympathies personally, and hope that the enterprise will receive kindly recognition and liberal support from all Architects and Builders on the Pacific Coast, and from the public generally.*

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However strong the objections may be to a Board of Public Works, the people have gained nothing by intrusting the matter to the hands of men, who being, not "a Board of Public Works" by official designation, yet so in fact, as far as the City Hall is concerned, have managed affairs after their own liking and the dictates of those whose wishes they have been compelled, either from force or policy, to respect. That a great deal of money has been and is being expended unnecessarily in connection with the building in question, and largely so through the incompetence of a majority of the City Hall Commissioners, does not admit of a doubt. The present *de facto* Board of City Hall Public Works will illustrate the grounds of opposition to a regularly authorized and empowered Board.

Architects are Often "Beaten" and Plans Secured Without Cost.

As the representative journal of the profession on this coast, it is right and proper that we should notice and reprove wrongs of every nature appearing in connection with the planning and erection of buildings; and in doing so, we shall seek to avoid all statements, arguments, and reasonings, which can possibly be construed as special pleadings, designated to unfairly defend or uphold architects in any practice, rules, or acts, not in conformity with every reasonable principle of right and correctness.

We have repeatedly presented good advice to owners, cautioning them against the too common error of employing as architects, parties in no right sense qualified to perform architectural duties, and urged discrimination in this particular, and also in reference to letting contracts to irresponsible and incompetent contractors; and making the matter of an *apparent* saving of 5 or 10 per cent. on cost of building, the chief and controlling aim and object.

But our purpose in this article, is to refer to the very questionable means and measures adopted by a certain class of owners of real estate, to secure plans for buildings contemplated by them, without cost to themselves. We use the term *questionable*, as a modification of those more expressive, yet fully justified by facts, within the experience of every competent architect of any considerable practice.

The business values of architects consist far less in material things which may be handled and protected by locks, bars, and bolts, than in matured conceptions, and mind products, which when delineated by pencil, pen and paper, or more fully by mechanical construction, are no less the rightful possession of him who by mind and hand labor produces them in tangible form, than they were prior to delineation on paper. Nor does the erection of a building under and in conformity with plans so produced, lessen the producer's rightful ownership therein, nor render his productions common property for general or special use, beyond the purposes of their creation. In this defensible view of the case, we think that we are fully justified in condemning and rebuking a too general practice existing among certain classes of owners of real estate, who use every possible means to obtain the *benefits and advantages of architectural skill and knowledge, without cost to themselves.*

To accomplish this, schemes, measures and devices are resorted to, to secure as nearly as possible the duplicate of plans of buildings produced by some competent architects, without paying for them, and in this sense cheating and wronging those whose professional skill may have matured plans so desirable as to excite the admiration and appreciation of such persons, who from motives of meanness, ignorance of what is right between man and man, or positive dishonesty of purpose, prefer to filch and abstract from resources to which they are in no way entitled, the advantages and benefits which fair-dealing and right-minded owners obtain egitimately, by the proper payment of money.

It is unnecessary at present to recite the numerous ignoble and mean methods adopted by this class of persons, to "beat architects." Suffice it to repeat, that plans originated and produced by an architect, are his rightful values, and to which no one has the right of use or application without the consent of him who creates the value, any more than one neighbor possesses the right to appropriate to his use the property or values of another. Every man, in fairness and justice, is entitled to the enjoyment of all the advantages contained in things produced by him, whether made of metal, wood or other materials, or the less tangible and material product of mind and brain; and those who secure either for their own uses and purposes, without fair and proper compensation to the producing party, are defenseless under any rule of equity or honest dealings.

Not unfrequently such owners express satisfaction at their success—their "smartness!"—in managing to "get ideas" from architects and builders, and by "copying from other buildings" sufficient for their purposes. If the practice alluded to was set up and recognized as a right rule in all classes of professional and business pursuits, it would require but a short period of time to divert all present conceived legitimate opperations into systems of filching, advantage-taking, and every mean, and unworthy, and selfish resort, which presented the possibility of gain, or personal profit or advantage.

"Plan stealing" may not be *legal dishonesty*, but its legal destitution fails to remove the moral irregularity; or create a virtue in those who prefer to secure by *stealth*, that which honorable and right-minded owners obtain in a regular business way, by the payment of money.

In subsequent issues of this journal, we shall again refer to the subject-matter of this article in unmistakably plain terms, as it furnishes good grounds for complaint upon the part of architects, and is so condemnable in every business sense, that it should be severely rebuked, particularly in view of the fact that people of considerable means, and some who possess large wealth, pursue the course complained of; preferring to obtain plans by unscrupulous means rather than engage and pay an architect for his services.

The Critical Period Passed.

Whatever of doubt may have been entertained in the past in reference to the continuance and permanency of this journal, cannot be reasonably continued, as it has passed the most difficult and critical period of its existence known in journalism—that of making itself acceptable, and securing the generous support and favor of its patrons, and meeting and overcoming the excessive expenses and difficulties of the first year's publication. Having surmounted these, and standing approved by *all* who have spoken of us, so far as known to us, our confidence in future success is greatly enlarged and increased, and our kind friends should abandon any doubt and fear in reference to the years to come. For we again repeat, that while life is continued to the present management, the CALIFORNIA ARCHITECT AND BUILDING REVIEW will exist and prosper, maturing and increasing in interest and instruction with each succeeding year; and when, by the inevitable that awaits us all, its editorial pen shall pass to other hands, we hope to leave it as one of the successful works of our old age, to be perpetuated after we shall have gone to rest—with enlarged success for generations to come.

Help us, then, kind friends, by a *prompt renewal of subscription*, and, as far as it may be in the power of each, obtain for us new subscribers, until we shall enroll a sufficient number to justify the devotion of our *entire time and energies* to the work of its publication. This will be when we receive the names of TEN THOUSAND CASH SUBSCRIBERS.

Filled-in Lots.

Purchasers of real estate, those who "want to buy a lot for the purpose of erecting a homestead," often make a great mistake in their selections. By this we mean to say, that the far greater number of purchasers select and buy building lots which are "at the grade," with a "nice even surface," without a single thought in reference to the base of the lot, or the extent or character of "filling-in" that may have been done.

In a large number of instances, unfilled lots have been offered for sale in subdivisions, and remained unsold for years, for no other reason than that their surfaces were as nature made them, and in exactly the proper condition to commence the erection of buildings, by placing the foundation upon or in the permanent, original formation; to secure which is worth far more than all the cost of after filling-in, in the erection of buildings where solidity and absence of settling is at all important. And those who discard unfilled for "nicely graded" lots, and commence the foundation of their structures upon filled-in material, are more than "penny-wise and pound-foolish;" for it is a fact inevitable in all such cases, that settling will occur, varied in extent and effects only by the depth of the filling, the character of the material used, and the length of time elapsing between the filling and use of the lot.

This may be relied upon as correct: that there are portions of the City of San Francisco, which were filled-in twenty-five years ago, with rock, clay, sand, etc., such as constituted the top and sides of "California Street Hill," which, after a quarter century's settling, do not now furnish reliable foundation beds. In the localities alluded to, the filling continues to yield to the weight of buildings erected thereon, and solidity cannot be obtained; nor is it likely that the process of solidifying will complete itself within twenty-five years to come. This is particularly the case in every instance where lots are filled with soft rock, clay, soil, etc., without any regard to the original bed, with increased settling where the filling-in is upon a mud or soft base. Sand fillings pack much more speedily, but even this material requires the rains of many winters to produce perfect solidity, and those who suppose that a year or two is a sufficient length of time to perfect a settling which will insure permanency of foundation, labor under a great error of judgment. If however, the filling-in is of equal depth at all parts, the erection of buildings may be ventured upon with comparative safety, as in that case the settling will be equal and uniform. But where one end or side is filled two, three, or ten feet, and the other parts five, twelve, or twenty feet, it cannot prove otherwise than injurious to any construction erected thereon, by unequal settling. A partial remedy for this, however, exists in water tamping. Where buildings are erected on any other than the natural rock, clay, sand or gravel formations, a copious introduction of water into the foundation trenches, will assist greatly in packing, and the more water used within the bounds of reason the better, as far as solidity is concerned.

"Building on the sand" used to be considered the climax of folly, but in San Francisco it is fully demonstrated that the natural formations of sand are unexcelled by any other, and that buildings of any magnitude may be with safety erected upon the natural sand formations.

"By Day's Labor."

There is perhaps a less comparative proportion of work done "by the day" in San Francisco than in any other city. The "day's-work jobs" are limited in number, and only in exceptional cases are they of any considerable extent or cost. The reasons why this state of things exist are numerous, and their recital in elucidation of the many facts involved would fill hundreds of pages of this journal. There are two sides to the main question, each prolific in argument, tending to illustrate that selfishness, avarice, cupidity, covetousness, and their kindred inspirations, control the acts of men in innumerable instances.

The more fatally forcible argument is against the operating classes, who apparently fail to comprehend or realize the error so often committed on their part, in seeking to protract and make the most of work intrusted to them under the day's-work system, either by excessive charges for material furnished, or tardiness, amounting to what is understood by the term "loafing," *i. e.*, killing time, and idling away the time, so as to prolong the work in hand and extend its duration.

The *mischievous* fact of the matter, as far as the working classes are concerned, is in the creation of a general sentiment and belief, that workingmen cannot be trusted—that work done by the day costs very much more than a right and proper price, and excessively more than if done by contract. Consequently, this conclusion has become general, if not universal—that safety from excessive charges and wasteful cost in the execution of all classes of work can only be secured under contract arrangements.

This state of things induces a feeling of distrust, and creates antagonism between employers and employees, often amounting to "real ugliness." Tricks and deceptions are imagined on the one hand, even where not in practice; and on the other hand, resorted to in fact in many cases, because the underlying principles are defective. The attempt to use advantages wrongfully often work to the disadvantage of those making the attempt, and operatives generally have lessened their opportunities and reputations by "piling on" too much, and instead of being content with legitimate and fair profits, and working as steadily and faithfully on day's-work jobs as when restricted by contracts, have created prejudices against "day's work," and enforced the contract rule.

If the contract system was preferred for reasons alike honorable to all concerned, there could be no objection to its adoption; but from the fact that it is more the outcome of irregularities practiced and suffered, than from necessity or preference, it amounts to a partial, if not conclusive presumption, that under contract forms of operation, certain protections are afforded to the paying party, which are not assured by the "day's-work" rule; and the fact that protection is sought, argues the existence of a wrong or evil, either real or imaginary, as *protection* is wholly unnecessary in the absence of danger; and this feeling or sentiment of distrust and fear of overcharges and excessive cost, influences many to adopt the contract system, who, if confident that they would be honestly and squarely dealt by, would prefer to have their work done under the "day's-work" regulation. This adverse sentiment to day's labor bears severely upon many good and honest men, who would exercise as great diligence and integrity in the execution of work by "the day" as though bound by contract obligations. There are many such, but the more general experience creates the rule by which such matters are judged; and by this rule of judgment, the conclusion is almost universal, that proper economies and fair dealing cannot be secured where work is permitted to be done without contract restraints and limits.

It is to be regretted that this conclusion is too well sustained by the practice of a considerable number, if not a majority, of those who have been intrusted in good faith with the execution of works of various kinds, upon the presumed integrity of the operating parties. Many—influenced by one, or either, or all the evil inspirations mentioned in the preceding portion of this article—overstep all bounds of consistency and fairness, and frequently, for no other reason than manifest excess in charges, are compelled to modify their demands.

All this is greatly to be regretted, as it works to the disadvantage of the working classes, and justly so—only so far as right and honest principles and rules of trade are violated and questionable methods adopted to draw from paying parties more than a true and right value for the work performed and materials used.

By the "stringing it out" and "piling on" process, men may sometimes secure large pay and profit for the time being, but every such occurrence works to the after-disadvantage of the party who enjoys (!) such *temporary* profitable results; and however much or little justified, as far as other men are concerned, those who suffer by wrong acts—it matters not by whom committed—naturally withhold confidence in others, and prejudge the virtue of the masses, by the experiences encountered in one or more individual cases.

Sewer-gas—Small-pox.

Small-pox being a notable and loathsome disease, makes its presence unmistakably known and dreaded, wherever it exists; and millions of the human race in all parts of the world, have fallen victims to its ravages. It might be presumed upon general principles, that San Francisco, with its pure and invigorating atmosphere and climate, and natural advantages generally, would be exempt from more than special cases, never amounting to an absolute or approximate epidemic. But present and past facts and experiences emphatically controvert all theories which claim for this city natural exemption from the visitation of this dreaded disease. Or if such theory is sustained by actual facts, aside from causes interposed by the presence, acts, and habits of the inhabitants of the city, then the existence and spread of the disease must be attributable to the people themselves, and not to naturally existing causes of climate, location, etc.

But our purpose in this article is not to discuss the question of small-pox as an infectious disease, or to seek a solution of sources, or causes for its sudden breaking out in the "very heart of the city, and among the better classes;" but to present this other fact, the ravages imposed upon human life through the agencies of sewer-gases. The presence of small-pox, cholera, etc., is dreaded and creates alarm wherever and wherever they appear, because of their fearful and fatal character; but their coequal in the destruction of life passes as a rule with no more than incidental attention, although its work of disease and death is ceaseless and wide-extended. Some reasonably fair estimates of deaths occurring from ordinary or conspicuous diseases, may be reached, but no reliable data is available as to the number—perhaps hundreds of thousands yearly—who pass away through the agency of sewer-gases. The fact that diseases emanating from sewer-gases assume no specific or absolutely special character clearly defining their origin, obscures the real cause of disease in thousands of cases, by concealing them behind other names, such as diphtheria, pneumonia, malarial, and other fevers of various types and names, all of which are the channels through which sewer-poisons play upon human life and health.

But with all the facts that may be stated, there is but little hope that the public mind will become enthused upon this subject, in any reasonably proper degree. It is one of the strange things in life, that men learn to live in the midst of known dangers, without any concern in reference to consequences; and allow themselves to disregard conditions of the most serious character, virtually tempting or defying the natural and divine laws concerning life and health in mankind.

The *Troy Press* furnishes the following item: "Governor Cornell's serious illness was contracted at the executive mansion in Albany. Sewer-gas escaping through imperfect joints brought on malarial fever, and the Governor was for some days near to death's door. His home is expensive, and the State yearly appropriates considerable money for its repair. When sewer-gas can impregnate the atmosphere in the executive mansion and sicken the Chief Magistrate of the State, it is no wonder that in houses less carefully watched, and less expensively managed, it can find thousands of its victims."

Still the masses are tardy in recognizing the importance and magnitude of these facts, and owners manifest far too limited concern in the matter of sewerage, being more anxious to save a few dollars in cost and expenditures, than by reasonably liberal outlay to secure perfect sewer-work through the practical skill of men who possess the mechanical knowledge and moral integrity to perform their work faithfully and honestly. We again state, as a fact, that not twenty per cent. of the side sewers in this city are properly laid, with perfectly air-tight joints, and therefore but partially fulfill the purposes of their insertion.

Our Thanks.

It would be ingratitude on our part, not to acknowledge the numerous courtesies and flattering congratulations received during the present year. We have either been exceptionally successful in meeting the expectations and views of our patrons, and the favor of journalistic brethren, or greater consideration has been extended than is common in journalistic pursuits; for we have received no other than kind and encouraging expressions and editorial notices of the most pleasing character. Not the least satisfactory is the fact that many of our original articles have been copied into a large number of American and some English journals, the greater number giving us due credit for our matter, while some few have practised plagiarism upon us, not only copying without credit, but refusing to correct their *oversight or design*, (!) after their attention has been directed thereto.

We are pleased at our success thus far, and looking hopefully forward to the future, trust that our after-work in journalism will not only justify a continuance of past favors, but stimulate still greater commendations on every hand. To secure this, we shall most earnestly strive—not by striving for the thing desired, but by so shaping our course in right directions that the result wished for will be a natural sequence.

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Correct Plans a Necessity.

The value of desirable real estate is often materially compromised by the erection of unsuitable, poorly planned, and injudiciously designed and arranged buildings. There is such a thing as *incumbering* a building lot, by the expenditure of money in the construction of intended and so-called improvements. A gentleman once remarked to us in referring to a case of this character: "There ought to be a law which would hold architects responsible for damages, where the matter of planning is left to their judgment, and they produce, and through confidence in the correctness of their judgment and knowledge, owners are led to accept and pay for the erection of defectively arranged buildings." A law of this kind would meet the views and wishes of all competent and qualified architects, for three reasons: first, they would run but little risk under such legal enactment and responsibilities. Secondly, it would compel the *spoilers of good property* to retire from the profession, and relieve it of some of the reflections at present resting upon it, through the incompetency of some pretenders—Architects!—who are incapable of completing aproximately correct plan, or of specifying intelligently the abortions produced by them; or if their success in *paper spoiling* culminates in actual construction, their knowledge of good or bad workmanship is such, that consummate botchery passes with them as skillful workmanship; and thirdly, such a law would protect the interest of owners, by saving them from mistaken engagements with *cheap* inferior parties, even if it enforces the payment of fair and legitimate commissions to qualified men.

Every architect in the country is indirectly interested in the productions and acts of all others in the profession; for a mistake or willful error perpetrated by an architect, by which the owner feels aggrieved and injured, reflects more or less unfavorably upon all others in the profession. For an intelligent owner who suffers wrong by a party claiming to be a qualified architect, is very apt to prejudge all others *by the standard of his experiences* with those with whom he may have had contact. Such prejudgments are by no means fair nor just but it must be admitted that they are the natural result of disappointed confidence. Men who have been kicked by a jackass, are very apt to give wide berth to the heels of all other long-eared animals, feeling that there is danger in the hind hoofs of every member of the braying family. It is a well-understood fact, that all professions and callings in a general sense suffer from the wrong acts of individual members. A few notorious preachers, professedly in harmony with the doctrines and tenets of their respective denominations, have "hardened the hearts of thousands of sinners," who, improperly we admit, denounce all teachers of divine things as hypocrites and demagogues. And the same rule holds good in reference to professional men of all classes.

These thoughts suggest the necessity for such established rules and statutory enactments as will correct the common errors which to too great an extent prevail in professional relationship. That workingman who fails to perform his duties as a worker for daily wages may be discharged at any moment, with no greater loss to the paying party, than the amount of wages paid for insufficient services; but in the matter of plans—by the time an owner discovers the error which may have been made, large expenditures may have been incurred, and the circumstances and conditions may be such, that remedy may be impossible, except at the sacrifice of all that may have been done.

Hence the folly of owners intrusting their interests to men whose recommendations reach no farther than personal friendship, or the artful embellishments of sophistry—a qualification at the command of almost every man who succeeds more by his wits and showy pretenses, than by his substantial qualifications.

BELGIAN SAND FOR MAKING GLASS.—It has been suggested that German vessels, or rather vessels from German ports coming here in ballast could bring Belgian sand—the best in the world for glass making—as ballast, and not only make a little on inward freight, but help to improve the glass manufacture on this coast by supplying what is claimed to be the best sand in the world.

How Architects are Misused.

Several months since, a party came to this office, assuming to be an influential attorney-at-law, residing at M——, S—— Co., and ordered plans and specifications for a fine residence. Said plans were made under *his* special and personal direction, which when completed were handed to him, without any question as to his integrity, or any demand for payment upon delivery—a proper *rule* where plans and specifications without superintendence are ordered. Additional to these, full details were ordered, prepared, and forwarded to M——, accompanied by a bill for services. But the *honest* lawyer, who previous to his studying law in this city, was a common hand or sailor on "coasting vessels," refused and continues to refuse to pay, because his avarice prompted him to direct and *supervise* the preparation of plans for a building 43x52 ft. 6in., with 10-ft. verandah on front and two sides, and a cupola on roof, with deck railings, etc., brick foundation and two-story ell in section, all very complete, and large enough for a country hotel, and much enlarged on "preliminary sketches," but which he found upon submitting for bids, could not be erected for less than $10,000 instead of the insufficient sum desired by him—$7,000. Although he stated that "he did not want to spend more than $7,000, and would not," he paid no attention to our reply in reference to cost of building—"that we did not know what could be done at M——, but such a building could not be erected in this city for the sum named"—he continued to add to the cost in various ways, and carried the plans and specifications away, entirely satisfied with them. His often-repeated *remark* was, that he wanted a "nice house"—rather better than any heretofore erected in M——. And because he was unable to find any one silly enough to undertake its erection at his own conceived, but to us unapproved price, his sense of fairness is to refuse payment for the plans.

Such cases as this occasionally occur, and architects are asked or forced to lose their time, skill, expense, and labor, or "go to law," because men with no fair or right sense of building costs and values expect to obtain homesteads for sixty per cent. of their real value. Honesty hath many forms, but with all its virtues, is often made to blush by the hideous distortions enforced by men who are prompt and loud in its proclamation, but not in its practice. It frequently occurs that owners, upon ordering plans, fix the amount *intended* to be expended, but unless an architect by special agreement binds himself to produce plans which will not exceed the owner's designation, he is under no pretense of law or reason in duty bound to sacrifice his labor and expenses. It is but seldom the case that owners name a sum sufficient to cover the value of the building devised, and to say that an architect shall receive no pay for his services, because an owner expects too much for the money proposed to be expended, is too gross an absurdity to admit of argument. It would require the magic powers of Hector's gods to carry out the wishes of some owners upon the financial basis proposed by them. There is reason in all things, even in preparing plans and erecting buildings.

The Antiquity of Labor.

Whatever of prehistoric obscurity and mystery may surround "the beginning" of certain nations, tribes, orders, customs, philosophies, traditions, etc., the light is clear in reference to the origin of the "working classes." Accepting the Sacred Record as our guide, we learn that Adam and Eve were the first to discover the necessity for and to devise a means which would provide them a covering for their nakedness. Consequently, the first labor performed by human hands was in the Garden of Eden, by the progenitors of the family of mankind, in the manufacture of fig-leaf garments. However insignificant and crude this first effort at dressmaking and tailoring may have been, it nevertheless remains the initial operation of all labor. And from then until now, with multiplied necessities occurring and increasing with the rising and setting of each day's sun, the sons of men, either from choice or necessity, have, at least in all civilized lands, accepted the situation, but changed the original Adamic order of things, until the metallic products of earth are transformed into inanimate workers, and made to do service in connection with every department of labor.

There are Errors on Both Sides Which Need Correcting.

In a number of articles, from time to time appearing in this journal, allusion has been made to some of the unpleasant features existing in connection with the architectural profession, and the course pursued by a large portion of the property owners, in the erection of buildings in this city. We have made two issues: first, that the profession is, in a large degree, demoralized and dishonored by men engaging in its practice, who are in no right sense qualified to perform its high and honorable responsibilities—men who are mere skirmishers upon the outskirts of the vast field of thought, where right conceptions fructify and produce right understandings, and a proper and full knowledge of the diversified and difficult, yet harmonious and beautiful principles, theories, and practices of architecture can be obtained.

Secondly, the too common desire of owners to pay as little as possible for architectural services. The man who proposes to perform them for the least amount of compensation is looked upon with favor, and the *apparent* saving removes all doubt and question in regard to competency and trustworthiness; or, if a doubt exists, the desire to lessen expenses induces the taking of chances, and just as it should and naturally will be in a large majority of such cases, the economists pay dearly for their injudicious practice of the rule. Men are reproached and laughed at who "dabble in stocks" and lose. Yet there are a great many games of chance ventured upon in ordinary business pursuits, and in the erection of buildings, which are inspired by the same spirit which impels to gambling in its more notorious and less respectable forms; and one of these forms presents itself in the subject-matter under review, which, in its nature and effect upon an honorable profession, renders it a proper subject for discussion in our columns. We shall, therefore, from time to time, pursue this subject at length, and present facts which must be accepted by every fair-minded person; with scarcely the hope however, that we may to some extent be able to induce a more correct sentiment in this connection on all sides.

There can be no successful controversion of the fact, that wrong impressions and conclusions are entertained by many, and that distrusts and business embitterments and prejudices more generally arise from lack of full and proper understandings, than from justified causes. This fact is clearly illustrated in the experience of every man engaged in professional, mercantile, mechanical, or other operations—none being entirely beyond the reach of "hard things said about them," although they may enjoy the fullest confidence of those most intimately and directly connected with them, and therefore better qualified to know and understand the motives, principles, and controlling purposes of those condemned by others as dishonorable, unprincipled, and perhaps dishonest and villainous. The common error is, to "work up a case," and by circumstantial evidence, often greatly exaggerated and magnified, establish the guilt of parties who do not conform their acts to our own liking. Enmity and evil report in thousands of cases have their origin in the innate or acquired disposition of those who indulge in them, more than in well-sustained causes.

It may not be possible for us, nor do we expect, to change this long-established condition of things; but we shall feel that our labors have not been in vain, if, to any extent, the influence of this journal shall modify prevailing errors, and induce a nearer right and more equitable and more generous sentiment among owners, architects, contractors, and the working class generally.

An Error Corrected.

In copying "Another Great Engineering Work Completed," in the October number of this journal, our printer and proof-reader made a *slight* error in figures, inserting "7,000,000" instead of 7,000 miles, as the speculative length of a line of carts necessary to carry away the removed earth, etc. As the error amounted to an excess of one thousand per cent., we presume that any intelligent reader readily recognized a printer's error, and not an editorial blunder.

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The Glory of the Architect.

Robert Burdette, of the Burlington *Hawkeye*, says: I have often wondered why the architects of court-houses were not always hanged at the dedication of the building. If the court-house is a very cheap, shabby, old-fashioned sort of affair, worth about $950, the chances are that a man speaking from the bench can be heard half way to the door. But if it is a handsome affair, and costs the county anywhere from $150,000 to $500,000, then the lawyer, climbing into the laps of the jurors and bellowing his eloquence into their several respective ears, can make himself heard. The reason why the judge always writes out his charge to the jury, and the foreman always brings in his verdict in writing, is because, in most court-houses, the jury would never know anything about the charge, and the court would never know whether the prisoner had been hanged or awarded a premium of $200, if the human voice alone were the medium of communication.—*Exchange.*

Mechanics as Writers.

There is no department of productive business in which a larger proportion of actual brain work is employed than in the building and working of machinery, and there is no class of our producers who offer so little of their experimental knowledge and observant wisdom to the world in printed form. The agricultural papers teem with communications which frequently contain valuable hints, exact information, and suggestive facts. But the publications devoted to mechanical matters and the interests of workers have far less of these voluntary contributions. One of the reasons for this is, undoubtedly, that practical mechanics may be properly considered one of the easiest sciences, and statements that in other departments of industry would pass for mere personal opinion, become of great importance as elucidations of mechanical law or demonstration of facts, which are, too often, deemed by the experimenters as mere tests, lacking the authority of practical use. Yet, in many cases, these tests are more than experiments, and frequently carry with them their own demonstration. The mechanic deals with material substances and mechanical processes that are continually presenting new problems for solution, and are capable of being solved by more than one method. At least, this solution invites attempts in more than one direction. So the mechanic dislikes to provoke criticism and invite comparison, when he knows the field is so large and the cultivators so many. There may be another reason why the mechanic does not "rush into print" as some others. He is not given to talk. His work requires, largely, concentration of attention that leaves little time to talk. Indeed, the mechanic generally profers to illustrate by sketch or work rather than to elucidate by words. In fact, this method is easier than talking. It is not easy to convey a proper idea of a machine and its operation by words alone. The choice of language and the avoidance of mere "shop talk," necessary to convey to the general reader mechanical ideas, demands a very thorough knowledge of the English language, and some acquaintance with cognate tongues. It is not meant that the writing mechanic must necessarily be a college graduate, or even to have borne off the honors in a high-school class. But choice of language in mechanical writing is a necessity—not a mere convenience. The writer on mechanical subjects ought to know that "rotary" and "revolving" are not synonyms, and that "force" is not necessarily "power"; these, and similar errors, being quite common. There may be other reasons why mechanics are not fond of writing for publication. But it is a fact that the number of really practical workers who are writers on their specialty are very small indeed. The number of practical mechanics who are regularly employed on mechanical papers in this country is so insignificant, when compared with the value of our mechanical interests, as to surprise one who takes the trouble to inquire. There can be no doubt that the welfare of working mechanics would be greatly enhanced by a greater willingness on their part to present the results of their own experience to their fellows, through the medium of the special papers devoted to their interests.—*Canadian Industrial World.*

We find the foregoing article in, and copy it, with the ascribed credit of authorship, from "The Mechanic," a weekly journal published at Smithville, New Jersey, while the same article appears in prominent New York and Eastern journals of very large pretensions, without any acknowledgment of authorship, leaving the question of originality to be presumed by their patrons. We are surprised at the extent this disreputable, unjust and unfair, if not *positively dishonest* course prevails in journalism; the ignominy of which is less when practiced among daily or weekly newspapers—in the conduct of which, by a sort of unavoidable consent, such things have become almost matter of course occurrences—than in journals of special character, assuming to represent great professional, scientific, mechanical, and kindred interests, wherein nothing but exact truth and fair representations should appear. "An exchange states," or "exchange" are like unfair methods of obtaining the benefit of other people's productions, and we condemn with all the force of language possible, the far-too-common practice of journals copying matter, and failing to give *full credit* for the same. Judging from facts and evidences at command, it is fair to presume that a very large proportion of what *appears* in some journals as original matter is *copied without credit*, and to that extent dishonorably obtained.

Durability of Frame Buildings.

In one portion of an article appearing in the *Evening Bulletin* of the 12th inst., the writer makes the unsustained and erroneous assertion that "a common balloon-built redwood house is old and difficult to rent in ten years," etc. This is another illustration of the reckless disregard of correct facts in innumerable instances by men who write up articles to fill space, without any effort on their part to understand, ascertain, or determine true conditions; or if reasonable efforts are made in that direction, the absence of proper intelligence and information in regard to the subject written upon leads them to make blunders of the character noticed. From like causes the country is flooded with stories and statements which contain not a word of truth. Not that all such persons intend knowingly to misrepresent facts, but when men draw and write up their conclusions from superficial knowledge or cursory considerations of the matter in hand, without proper effort to reach the real and underlying facts, it is but reasonable that gross errors should occur.

The statements of the article were intended to prove that the lumber materials of this coast are not durable for building purposes, as a whole, particularly in common "balloon-built" structures, which "at the end of ten years are old and difficult to rent," and in "elegant residences built of redwood" the limit of "an ordinary lifetime" was fixed as about the extent of their durability, with the suggestion that if houses were built on this coast as they are in New England, they *might* stand 150 years. To all this we answer: The difference between New England built houses and those erected in San Francisco consists simply in the morticing, tenoning, and pinning together of the frames, instead of cutting the studding, etc., square off, and supplying the absence of the "framing" process by the use of nails, a difference which does not in the slightest degree affect the durability feature. If a frame building erected New England fashion would possibly last 150 years, the years of its standing and durability would not be shortened the period of one tick of the clock because built "balloon style." Hence, the reference is far-fetched and erroneous.

That many houses ten years old are difficult to rent is a fact, but not because they are either built of redwood or "balloon fashion," but because they are ill designed, inconveniently arranged, and destitute of any reasonable amount of modern or ordinary conveniences. The cause of their not renting results from the acts of the owner's penuriousness or bad judgment, if not their stupidity and meanness. Some men would spoil a house, or "ruin their own souls" for the sake of saving and hoarding a few dollars. The commonest built houses in San Francisco are those erected in the "early days," when the least possible regard for anything good and lasting was the rule. Still, hundreds of these remain standing and are occupied, and thirty, instead of ten, years have not sufficed to wear them out. With the exception of such parts as have been subject to excessive wear and tear, such as that experienced by contact with the ground, by leaks and confined dampness, causing mildew and rot, the lumber materials in them, to all appearances, are as sound as ever.

The more recently erected "elegant residences," with brick foundations, where the woodwork stands well clear of the ground, will remain in good and sound condition for as many or more years than the same lumber material will remain sound as floor joist, etc., in brick, granite, or marble front buildings. It is well known to all parties enjoying a practical understanding of the matter, that the progress of dry rot is very rapid at the wall ends of floor joists in brick edifices, and all known facts point to the conclusion that frame buildings, erected with any proper regard to their protection against contact with the ground, and painted at proper intervals, will last many generations, notwithstanding they may be built "balloon fashion," which term we understand as applicable to all frame edifices not framed together by morticing, tenoning, pinning, etc., according to the old and established rules of architecture and carpentry.

This journal has repeatedly advocated the adoption of brick, stone, etc., for residence buildings, and we hope that ere long a change in public sentiment, which now prefers frame, will incline to the more imperishable material. But the impression sought to be conveyed by the *Bulletin's* article is so erroneous and contrary to correct facts, that we deem this correction necessary and proper.

We clip the following from Magee's *S. F. Real Estate Circular* for November:

THE one report comes from all of the savings banks—that money never was so cheap, yet there is next to no demand for it. Even the very low rate of 8 per cent., with the lender paying the mortgage tax, is shaded a little by some banks in favor of borrowers who come with new loans and A 1 security. We say *new* loans, for the banks have a sort of tacit understanding that they will not encourage borrowers who desire to change their loans from one bank to another, simply with the object of getting money at the very lowest notch of interest. The Hibernia Bank only lent $58,300, the Savings Union $58,770, and the German Bank but $68,400 last month. Any movement approaching speculation in real estate would at once cause a greatly-increased demand for money at the savings banks. The total value of the mortgages given in October was $390,883, and of the releases $576,111.

THE increased inquiry and sales of real estate, first noted about two months ago, still continues. This increase is chiefly noticeable in business property. We especially note, for the first time in five years, that there are buyers for vacant land on prospective business streets. Much of this land has for one to three years been offered for sale, without attracting buyers; now they seem to have discovered that such property, vacant though it be, may prove as profitable, not from rents, but from increase of value, as inside, improved business investments. Offers have been lately refused for such property that would gladly have been accepted three to six months ago. A comparison of the sales made in each section of the city in September and October shows a heavy increase for the later month. For instance, the value of the sales made in September in the fifty-varas section amounted to but $144,787; in October their value was $532,564. The Western Addition sales amounted to but $108,989 in September, and to $289,737 in October. The Mission and One Hundred-vara sections show reductions, sales in both regions having been very slow last month. On the whole, the real-estate outlook is the most encouraging we have had to note in some time. There are many buyers in the market now who could not possibly have been induced to touch real estate a year ago. The total number of sales made in October was 170, of the value of $1,163,143.

MEAN MEN AND MEAN IMPROVEMENTS.—Michael Reese was one of our millionaires who in his lifetime was close enough in monetary transactions, yet Mr. Reese was not afraid to erect a first-class building on a business street; but we have here several equally rich men who *never* erected a decent building in San Francisco. Their stingy souls are afraid of the outlay and temporary loss of the income for the three or four months in which the building was being erected. The fact that they would make far more money in the end, and benefit their own and surrounding property, seems to have no weight with persons whose souls are wrapped up in money, and who cannot bear to part with it for a moment, even for their own final benefit.

EXTENSION OF THE CALIFORNIA-STREET RAILROAD.—A proposal was lately made to the California-street Railroad Company by the property owners on California street, from the present terminus to Fifth avenue, that they would grade these streets on condition that the company would at once build an extension of the line by this route to the Park. This proposal was accepted by the company, but *all* of the owners have not yet agreed to carry out their part of the arrangement. Whenever the streets are graded, the line will be built. It will pass through a large tract of land lately bought by Gov. Stanford. It is to be the site of the Olympic Park, which will comprise a race-course, a canal for rowing, and space and arrangements for many open-air games.

VALUE OF BUSINESS PROPERTY IN LARGE CITIES.—Land in the most central business locations in London is worth $135 per square foot, about $100 per square foot in New York, about $30 per square foot in Chicago, and about $28 per square foot in San Francisco. Nothing more strongly illustrates the wonderful growth and importance of our leading cities, and of the constantly increasing tendency to concentration of population and wealth in them, than the figures above given. If city real-estate values increase for the next twenty-five years as they have during the past quarter of a century, the holder of a lot *anywhere* on Manhattan Island will then be a rich man, while the owner of a lot within the corporate limits of Brooklyn, Chicago, San Francisco, Boston, Philadelphia, or St. Louis, will also be in independent circumstances. Within that time, however, it is quite possible that some new and much cheaper and more rapid means of communication than any now in use may be devised, which will partially break up the monopoly of city real-estate prices, by breaking up the close concentration of population within their corporate limits. The poor—with whom the purchase of a homestead within the limits of some large Atlantic cities is now impossible—no doubt ardently hope that such a means of transportation may be put into successful practice. So far as San Francisco and poor men are concerned, the latter have not had such a chance to buy a homestead cheap within about fifteen years as they have at present.

BUSINESS STREETS AND POOR IMPROVEMENTS.—San Francisco is one of the few cities of the United States in which property owners think a business street can take care of itself, no matter how poor the character of the buildings upon it. But there never was a greater mistake. Front, Third, Fourth, and portions of Market street are striking examples of this fact. Market, between Montgomery and Mason, has greatly suffered in rents and business by the very shabby character of the improvements on many portions of it. The late Gen. Colton used to own a large property corner Third and Tehama, which he improved well. He informed us, about three years before his death, that he found that no amount of argument or influence could induce other owners on the street to make decent improvements, and he therefore sold out in disgust. The fact is, old shanties or cramped and badly-lit brick buildings will no longer do on *any* business street, let the character of the business transacted be what it may. Business will finally leave *any* street—no matter how great its natural advantages—where the owners persistently refuse to make requisite improvements. Many blocks on the retail portion of Market street have wretched old houses upon them. If owners on Mission street, from Third to Ninth, were to join together and erect brick buildings on their land, they would run Market street a very close race for the retail supremacy of the city. Of course there is no probability whatever that this will be done, but if it were, it could be made a great success. We say Mission street, in preference to Third, Fourth, or Sixth, because those streets will be but subsidiary business streets, and will not have any final anchorage of business until the Potrero is built up, when two of them at least (Fourth and Sixth) will have a travel to and from that quarter of which they cannot be deprived.

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

Our Illustrations.

In the October number of this journal, by a singular oversight of the printer, a plan of building was presented, which is no respect agreed with the design or elevation accompanying:

Although the error was unintentional, it was none the less annoying, as we desire to avoid mistakes, and present a reliable journal in every particular.

To correct the error, we reproduce both the plan and elevation, with their respective counterparts.

Plans and Elevation A, explain themselves. A cottage of this character has just been finished in this city at a cost of $3,000, including fencing, sheds, etc., but by a lessening of expensiveness in several ways, its cost may be reduced several hundred dollars.

Plan and elevation B represents a neat city cottage of five rooms, bath room, closets, etc., which may be erected complete, for anywhere from $1,500 to $3,000; the amount varying with the character of materials, workmanship, and finishes adopted.

The Prospects of Trade.

On all sides the business outlook is of the most cheering character. The statistics of the Treasury Department show that during the nine months ending with September the total exports of breadstuffs was in round numbers nearly $209,000,000, or over $30,000,000 more than during the corresponding period last year. The exports of domestic provisions during the same period approached $104,000,000, against $82,000,000 for the same months last year. The total exports of domestic manufactures and merchandise of all sorts during the first eight months of the current year, ending those of the same period last year by more than twenty per cent; and the general conditions of trade during the later part of the year—for which the full statistics are not at hand—certainly indicate no falling off in the ratio of increase. The increase in the value of goods imported this year is greater than the increase in exports; while the steady inflow of gold from Europe is proof enough of the healthful condition of our foreign trade as a whole.

Our domestic trade was never being prosecuted with greater vigor, confidence, and profit. The great lines of communication are taxed to the utmost to handle the merchandise now in motion. The trunk lines of railway report their western bound freights to be from 25 to 40 per cent. greater than this time last year, while the eastward movement is fully 10 per cent. above that of the corresponding period in 1879, with the heaviest parts of this year's crop yet to be moved. The coastwise trade is likewise reported as considerably in excess of last year's.

Not less cheering are the reports from manufacturing centers, East, West, and South. The mills and factories are running full time and full handed, and critical observers note as a source of special gratification that at no time since the war has there been so great a demand for tools and machinery required in old established works and for equipping new ones. The manufacturers of tools, machinery, and other appliances for manufacturing are crowded with orders, indicating not merely a present active demand for manufactured products for general consumption, but a confident expectation on the part of producers of increasing demands in future.

Even so conservative an authority as the United States *Economist* does not hesitate to say, what we had the pleasure of asserting more than a year ago, that the country has entered upon a period of productive energy and prosperity such as it never has seen before. In the words of our contemporary, the best ten years in all the history of this country are now before us. During the coming decade we shall enjoy a period of unexampled prosperity, a prosperity whose foundations are as real and whose basis is as broad as the unequaled products of our fields, flocks, factories, and mines.

"With our currency on a specie basis, with our population steadily increasing through the active toilers of foreign immigration, with vast areas of rich virgin soil being constantly added to our productive growth, with all our vast industries in successful operation, with the balance of trade in our favor, with peace at home and abroad, with labor steadily employed and wages good, with the wealth of the nation rapidly augmenting, there is no bar in the way of our commercial advancement. All obstructions are happily removed, and taking care of home wants and developments, let the business men of this country reach out for the commerce of the world."

As we remarked in a recent issue of the *Scientific American*, the closing years of this century should see, and certainly promise to see, as rapid a progress toward American commercial supremacy as the two decades just past have seen in the development of our agricultural and mechanical supremacy, with a collateral progress in our industrial affairs that the boldest scarcely dream of now.—*Scientific American.*

Shooting at Balloons.

English papers report some experiments, lately made at Dungeness, which shows remarkable success in reducing the efficiency of military balloons. An ordinary service balloon was used, and after it had risen to a height of 800 feet was fired at with an 8-inch howitzer at a distance of 2,000 yards. The gunners were not instructed as to the precise range, but were required to find it for themselves. An 8-inch shell was accordingly fired into the air as a trial shot, and this, despite the novelty of the target, sufficed to supply the gunners with the necessary information. The next shot brought down the balloon. The projectile was a shrapnel shell, and the fuse had been so well timed that the shell burst just in front of the balloon, projecting something like 300 bullets through the fabric, and causing its immediate descent.—*Scientific American.*

Chicago vs. San Francisco Enterprise.

Few people have any idea of the rapidity with which Chicago is becoming a great manufacturing center. The statistics gathered by the Secretary of the Board of Trade for the forthcoming census report show 3,752 manufactories in the city, giving employment to 113,507 operatives, and representing a capital of over $80,000,000. The value of the output annually is $249,000,000; value of material used $178,000,000; wages paid, $37,000,000—*Scientific American.*

That Chicago enjoys innumerable natural advantages in location, surroundings, railroad centerings, etc., etc., must be admitted; but the secret and source of its rapid growth and great prosperity is found in the stirring enterprise and well-directed business energies of its people, who, alive to their best interests individually, permit no opportunity to pass calculated to expand and increase the general prosperity of the city and State.

That fewer natural advantages surround San Francisco is also a fact, but the heaviest obstacle to its greater prosperity has been and is, the absence of energetic, sterling business men, who dare venture beyond the circumscribed limits of transparent individual gains and profits. That San Francisco and the State of California might have been far in advance of present conditions, admits of no question in the minds of thinking, practical men who comprehend the facts and possibilities of the case. Had the same degree of energy been displayed in developing the resources of this State, establishing manufactories, etc., that there has been in securing immense tracts of land and monopolizing hundreds of thousands of acres which should be divided into farms for the many, there would exist a materially improved condition of things.

"EXCHANGE."—We credit some of our copied articles "Exchange." Reason: they are copied from journals in which *our* original matter is sometimes copied and passed off as original articles with the journals so copying. We interpose no objections to other journals reproducing articles originally appearing in this journal, but we do expect fair and rightful credit.

The remark was made to us by a gentleman from New York—"Plagiarism is practiced to a greater extent in New York than anywhere in the world." If this is true—and our experiences will not permit us to contradict it—the journals of the "Great City" should turn over a new leaf, and at once quit the anything but fair practice; particularly those which represent the professional, scientific and industrial interests of the country.

How to Use a New File.

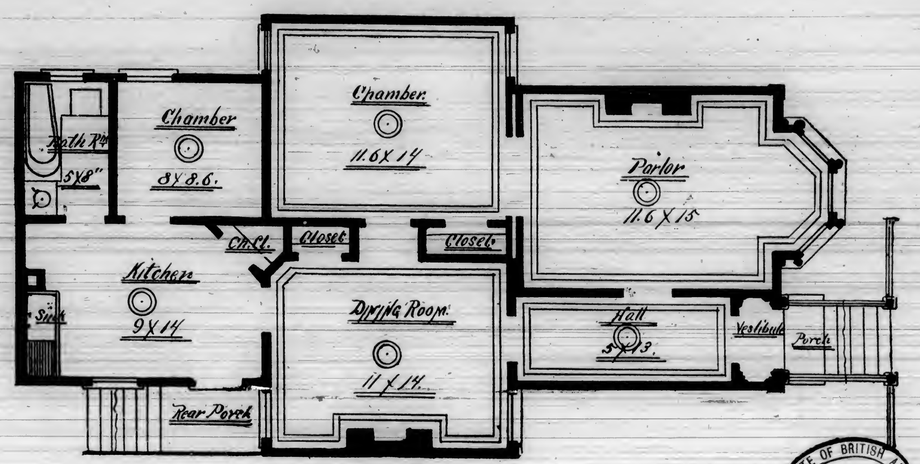
A new file should always be used with a light pressure on the work until the needle-like points of the teeth are worn away; after this a much heavier pressure may be used with much less danger of breaking off the teeth at their base. Many new files are violently diminished in half their efficiency by a few careless strokes when first applied to the work. Do not use a file on the chilled and gritty skin of castings, or on a weld where borax or other vitreous fluxes have been employed—no file can endure such usage. Every filer should keep a worn file with which to attack the rough, gritty, or oxidized surface of iron work, and thereby pave the way for more efficient work with his sharp files. In filing mill-saws, it is economy to first clean the woody particles from the edges and roots of the teeth with an old file, thus avoiding the choking of the teeth of the new file, and preventing the full efficiency of its keen cutting edge. A piece of gritty or chilled casting that would rapidly destroy the cutting qualities of a new file would produce scarcely any damaging effect on a worn one. In filing steel, better results can generally be obtained by using files of a grade not coarser than "2d cut"; finer grades being employed according to the finish and delicacy of the work under manipulation. Users of files should always seek to discover the fitness or adaptability of cut and form of files especially fited to their work. No one should expect the best results from a file on brass or spelter which was intended for use on iron and steel. Care should be taken when purchasing files to see that the manufacturer furnished full-weight articles. This is a desideratum, and especially in case recutting is desired. A full-weight file can be recut two or three times, while a light weight will hardly bear one recut and give satisfaction.—*Builder and Wood-Worker.*

A New Style of Passenger Car.

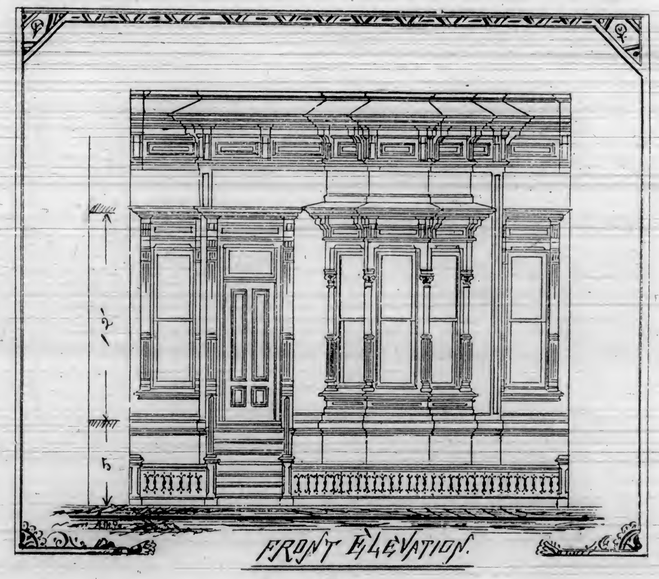
An exchange states that a new style of passenger car has been designed for the Philadelphia and Reading road, and is now nearly finished. It has been called "a Swiss cottage on wheels." The dimensions are about the same as those of an ordinary first-class passenger car. There are no curved lines anywhere, except some turned rosettes. In the building of the car and in the ornamentation right angles were observed. The elevator rises square above the roof, but the rafters, all of which show, meet in the center of the elevator roof. The rafters are of iron and wood, the former being exposed and painted so as to preserve the natural color of the iron, and the natural grain of the wood will also be shown. The interior portion of the car, excepting the iron, is all of oak, paneled, beaded, chamfered, and notched, and there is not a single piece of wood, if it is only a few inches long, that has no notches, grooves, right angles or rosettes. The head lining will be frescoed. On the exterior of the car there are brackets above and below the windows, to break the monotony of the weatherboarding, which also extends above and below the square windows, and there are rosettes on the panels between the windows. The outside will be painted olive green.—*Builder and Wood-Worker.*

¼ THE UTILIZATION OF SAW-DUST.—The saw-dust, which has become such a nuisance at Minneapolis and along the river below that growing city, offers a promising field of enterprise for whoever will utilize it. Several applications have already been made of it, and now arrangements are being made by a French manufacturing chemist for the establishment, at Minneapolis, of a laboratory to make from the saw-dust an acid, now imported from France, and largely used by dyers, chemists, and druggists. It is to be hoped that the enterprise will be successful.

STEEL FOR BOILER PLATES.—The tensile strength of steel for boiler plates should not greatly exceed 60,000 pounds per square inch; above 70,000 pounds the plates are apt to be brittle; below 50,000 pounds they are likely to be spongy. No plate should be used which, after heating to a cherry red and plunging into cold water, will not allow bending over cold until the sides touch, and without breaking.



Floor Plan, "B."



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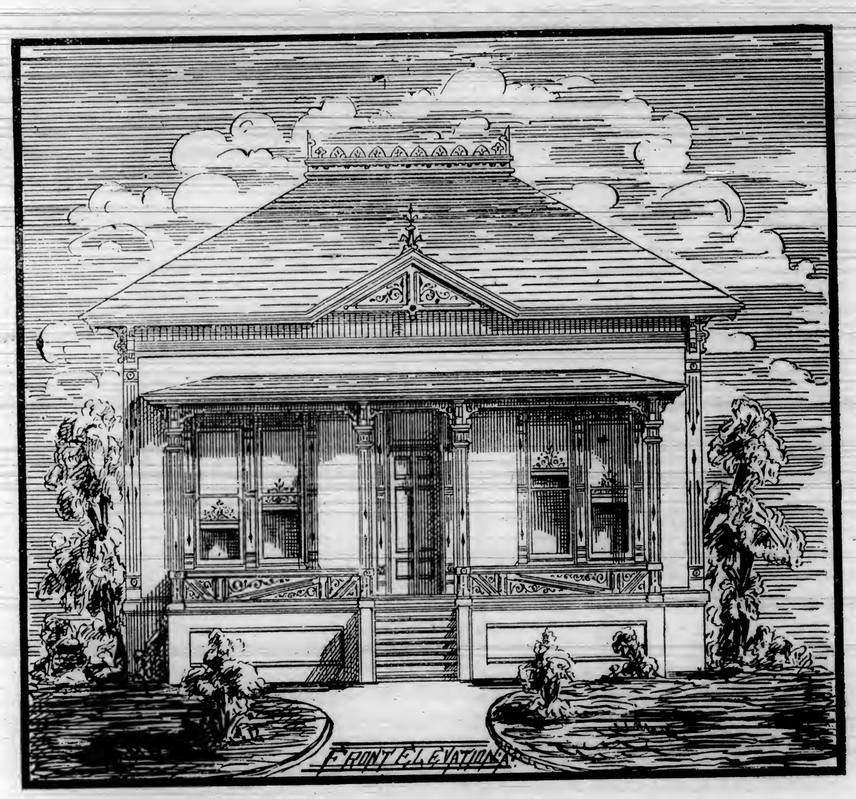
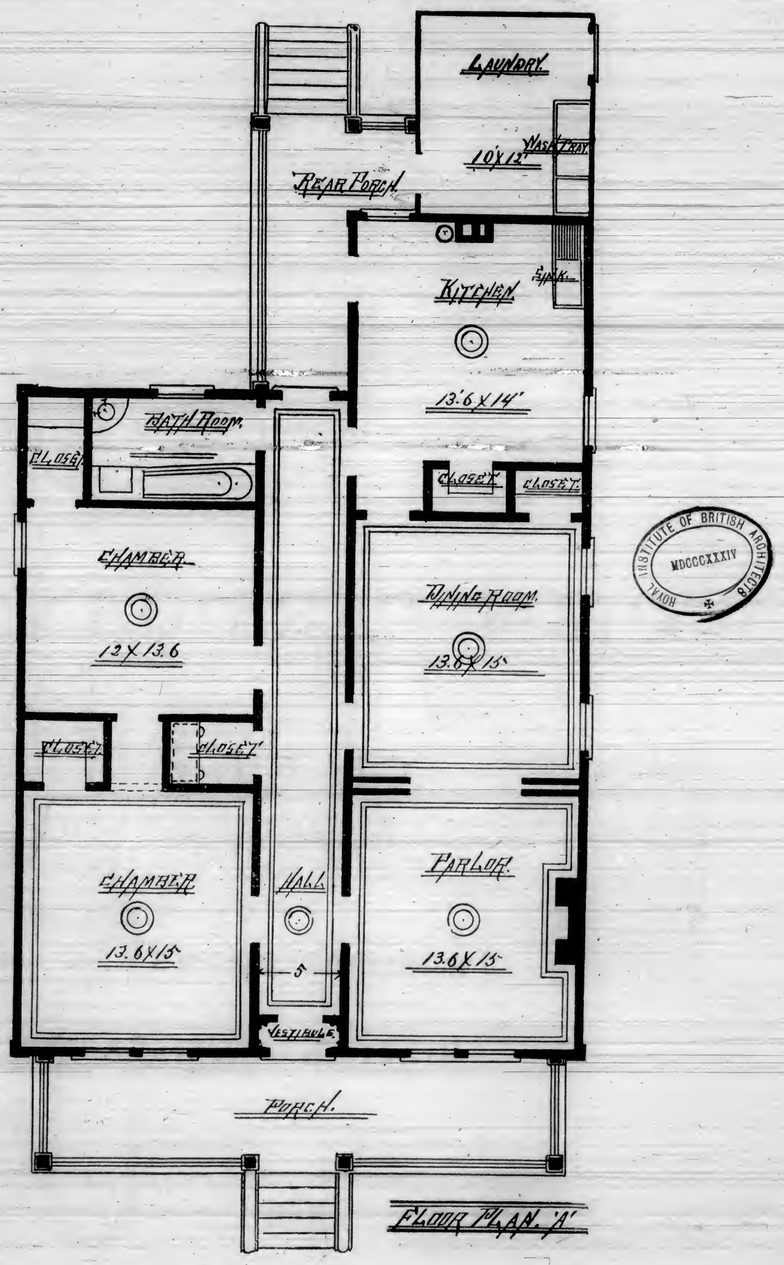


FRONT ELEVATION.



FLOOR PLAN 'A'

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TO THIS JOURNAL

FOR

1881.

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Ancient Man in Missouri.

The finding of numerous relics of a buried race, on an ancient horizon, from twenty to thirty feet below the present level of country in Missouri and Kansas, was noted in this paper a few months ago. The St. Louis *Republican* gives particulars of another find of an unmistakable character made last spring in Franklin county, Missouri, by Dr. R. W. Booth, who was engaged in iron mining about three miles from Dry Branch, a station on the St. Louis and Santa Fe railroad. At a depth of eighteen feet below the surface the miners uncovered a human skull, with portions of the ribs, vertebral column, and collar bone. With them were found two flint arrow heads of the most primitive type, imperfect in shape and barbed. A few pieces of charcoal were also found at the same time and place. Dr. Booth was fully aware of the importance of the discovery and tried to preserve everything found, but upon touching the skull it crumbled to dust, and some of the other bones broke into small pieces and partly crumbled away, but enough was preserved to fully establish the fact that they are human bones.

Some fifteen or twenty days subsequent to the first finding, at a depth of twenty-four feet below the surface, other bones were found—a thigh bone and a portion of the vertebra, and several pieces of charred wood, the bones apparently belonging to the first found skeleton. In both cases the bones rested upon a fibrous stratum, suspected at the time to be a fragment of coarse matting. This lay upon a floor of soft but solid iron ore, which retained the imprint of the fibers.

Overlaying the first found bones was a stratum of what appeared to be loam or sod, from two and a half to three inches thick, below which was a deposit of soft red hematite iron ore, lying upon two large boulders of hard ore standing on edge, standing at an angle of about forty-five degrees, the upper ends leaning against each other, thus forming a considerable cavity which was filled with blue specular and hard red ore and clay, lying upon a floor of solid red hematite. It was in this cavity that the bones, matting and charred wood were found, intermixed with ore.

The indications are that the filled cavity had originally been a sort of cave, and that the supposed matting was more probably a layer of twigs, rushes, or weeds, which the inhabitants of the cave had used as a bed, as the fiber marks cross each other irregularly. The ore bed in which the remains were found, and part of which seems to have formed after the period of human occupation of the cave, lies in the second (or saccharoidal) sandstone of the Lower Silurian.—*Scientific American.*

How Spools are Made.

The town of Drummondville, Canada, on the St. Francis River, had the good fortune some years ago to be selected as the site of several factories for the manufacture of spools, the principal reason for the selection being the abundance of white birch wood in its immediate vicinity. This wood, though inferior for many purposes, is just the thing for spools; and, in consequence, quite a thriving industry in this line has grown up. The following account of the process of manufacturing these useful articles may be of interest:

The wood, after being delivered to the factories, is first sawed into pieces about four feet long and from one to one and a half inches square, according to the size of the spool it is desired to make. These pieces are put into a dry house and there thoroughly dried, whence they are taken into the factory and given to the rougher, who, in an incredibly short space of time, bores a hole in the center a couple of inches deep, turns about the same space round, and then cuts off the length required for a spool. The machines used for this purpose are revolving planers, in the center of which is a revolving gimlet or bit, and immediately to the right a small circular saw, with a gauge set to the proper size for the spools. The roughers receive one and a half cents per gross for their work, and experienced men can turn out from 100 to 130 gross per day. The round blocks pass from them to the finishers, who place them in machines which give them the shape of spools and make them quite smooth. The spools are thrown loosely into a large cylinder, which revolves slowly, so that the spools are polished by the constant rubbing upon each other for some time. On being taken out of the cylinder they are placed in a hopper with an opening at the bottom, through which they pass down a slide for inspection. Here the inspector sits and watches closely to see that no imperfect spools are allowed to pass, and a very small knot or scratch is sufficient to condemn them. They are packed in large boxes, made the proper size, and no additional packing is needed. The packers receive one-quarter of a cent per gross for packing, and a smart boy who is accustomed to the work can pack about 200 gross per day. One proprietor ships over 2,000,000 spools per month to England, and another firm ship over 1,000,000 spools to Glasgow, Scotland.—*Exchange.*

The Future Supply of Black Walnut Lumber.

The future supply of black-walnut lumber is a question of the greatest importance to all those who are engaged in the manufacture of sewing machines, as this is the kind of material that has been found the best adapted for all kinds of sewing-machine cabinet ware. The fact that the supply of this lumber would run short at no distant day was foreseen some years ago by several of those who were using large quantities of black walnut, and many efforts were made by them to substitute some other kind of wood in its place. These efforts, however, were not successful, and the consumption has continued to increase to such an extent that at the present time the greater part of the land upon which this timber is growing has been placed under control by capitalists, both at home and abroad. The region from which the great supply of black walnut has been heretofore obtained is that known as the "Walnut Levels" of Indiana, but as the supply in these parts is about exhausted, other localities have been prospected for this kind of wood, the greatest attention having been turned to some parts of Tennessee. Here black walnut is found in great abundance, but it is inferior to that which grows in Indiana. It is eagerly sought after, however, in the absence of any other. The fact that Indiana has been the great black walnut region, has induced many to put up large factories there for the manufacture of the various different articles that are made of this kind of wood. That the approaching scarcity of black walnut in Indiana will necessitate the removal of many of these manufacturing concerns there can be no doubt. As an evidence of this, it is reported that one very large establishment now located in Indiana has the question of removal already under advisement.—*Exchange.*

A New Screw.

It is a well-known fact that the great bulk of the screws used are driven in with the hammer, and given a turn or two with the screw-driver to bring them flush. Recognizing this fact, an ingenious inventor, for many years somewhat prominently identified with the business, has brought out a new screw, which is adapted for driving, and which enters the wood without tearing the grain. The gimlet point is dispensed with, and a cone point substituted. The thread has such a pitch that it drives in barb fashion, offering no resistance in entering, but firmly resisting all attempts to withdraw it except by turning it out with the screw-driver. The head is flat, but in setting it up two nipples or square-shouldered projections are raised in it by the one operation. The screw-driver takes hold of them more easily than it does of the customary nick, and holds quite as firmly, and when driven flush the projections on the head are not in the way, and do not disfigure it. It is claimed that this screw can be made one-third cheaper than ordinary screws, the principal saving being in doing away with the necessity of sawing the nick in the head—*Design and Work.*

MAGNIFYING GLASSES 2,500 YEARS OLD.—In the writings of Confucius, the great Chinese philosopher, the following passage occurs: "As we use a glass to examine the forms of things, so must we study antiquity, in order to understand the present." This sentence points most unmistakably to the use of magnifying glasses long before the time of the writer, who died four hundred and seventy-eight years before our era.

How the Pyramids were Built.

Brugsch Bey, the eminent Egyptologist, says in his work on Egypt:

"From the far distance you see the giant forms of the pyramids, as if they were regularly crystallized mountains, which the ever-creating nature has called forth from the rock, to lift themselves up toward the vault of heaven. And yet, they are but tombs, built by the hands of men, which have been the admiration and astonishment alike of the ancient and modern world. Perfectly adjusted to the cardinal points of the horizon, they differ in breadth and height, as is shown by the measurements of the three oldest, as follows:—1. The Pyramid of Khufa—height, 450.75 feet; breadth, 746 feet. 2. Pyramid of Khafra—height, 447.5 feet; breadth, 690.75 feet. 3. Pyramid of Menkara—height, 203 feet; breadth, 352.78 feet."

The construction of these enormous masses has long been an insoluble mystery, but later generations have succeeded in solving the problem. According to their ancient usages and customs, the Egyptians, while they still sojourned in health and spirits, were ever mindful to turn their looks to the region where the departing Ra took leave of life, where the door of the grave opened, where the body, well concealed, at length found rest, to rise again to a new existence, after an appointed time of long, long years, while the soul, though bound to the body, was at liberty to leave the grave and return to it in the day-time, in any form it chose. In such a belief, it was the custom betimes to dig the grave in the form of a deep shaft in the rock, and above this eternal dwelling to raise a superstructure of sacrificial chambers—sometimes only a hall, sometimes several apartments—and to adorn them richly with colored writings and painted sculptures, as was becoming to a house of pleasure and joy. The king began his work from his accession. As soon as he mounted the throne, the sovereign gave orders to a nobleman, the master of all the buildings of his land, to plan the work and cut the stone. The kernel of the future edifice was raised on the limestone soil of the desert, in the form of a small pyramid built in steps, of which the well-constructed and finished interior formed the king's eternal dwelling, with his stone sarcophagus lying on the rocky floor. Let us suppose that this first building was finished while the Pharaoh still lived in the bright sunlight. A second covering was added, stone by stone, on the outside of the kernel; a third to this second, and to this even a fourth; and the mass of the giant building grew greater the longer the king enjoyed existence. And then, at last, when it became almost impossible to extend the area of the pyramid further, a casing of hard stone, polished like glass, and fitted accurately into the angles of the steps, covered the vast mass of the sepulchre, presenting a gigantic triangle on each of its four faces.

More than seventy such pyramids once rose on the margin of the desert, each telling of a king of whom it was at once the tomb and monument. Had not the greater number of these sepulchres of the Pharaohs been destroyed almost to the foundation, and had the names of the builders of these which still stand been accurately preserved, it would have been easy for the inquirer to prove and make clear by calculation what was originally, and of necessity, the proportion between the masses of the pyramids and the years of the reigns of their respective builders.—*Illustrated Carpenter and Builder.*

SMOKING IN GERMANY.—It appears that the German government has taken the matter of smoking seriously in hand, the practice being carried to so great an extent by the youth of that nation that it has been considered to have damaged their constitutions and incapacitated them for the defense of their country. In certain towns of Germany, therefore, the police have had orders to forbid all lads under 16 years of age to smoke in the streets, and to punish the offense by fine and imprisonment. Moreover, a Belgian physician has ascertained during a journey of observation and inquiry made at the request of the Belgian government, that the very general and excessive use of tobacco is the main cause of color blindness, an affection which has occasioned very considerable anxiety both in Belgium and Germany, from its influence upon railway and other accidents, and also from the military point of view.

A Valuable Discovery.

The process, devised by Mr. Bower and perfected by his son, accomplishes the object of protecting the surface of iron, and at the same time produces a beautiful French gray tint, which obviates the necessity of painting the articles treated. The process, which is not secret, consists in heating the articles to be coated in a closed chamber by means of carbonic oxide, heated air being made to enter the chamber for the double purpose of burning the gas and for combining with iron. The excess of air after burning the carbonic oxide gas, combines with the iron, forming first the magnetic oxide and then the hydrated sesquioxide, or common iron rust. By shutting off the supply of air until only enough is admitted to turn the carbonic oxide, the rust is converted into a magnetic oxide. The process is repeated until the film is sufficiently thick for the purpose of protection. The application of this invention has been undertaken on a large scale, the chamber where the oxidation is now carried on being large enough to contain about a ton of miscellaneous articles.—*Kansas City Review of Science.*

Constipation.

It is doubtful if consumption numbers as many victims as are stricken down by the various diseases that result from habitual constipation. True consumption is an inherited disease. It may remain always dormant, but when aroused to action, decay commences at a point circumscribed, and generally extends—unless arrested—until so much of the lungs become involved that vital action ceases. The evils of constipation result from inattention to the cails of nature, and usually commence with children whose habits are not closely looked to by their parents.

The processes of nature are always active while life lasts. When effete matter is retained a moment beyond the time its expulsion is demanded, the system commences its efforts to get rid of it. When the natural egress is checked, the absorbents carry the more fluid portions of the poisonous mass into the circulation, and it becomes diffused throughout the body. The more solid or clay-like portion is forced into the lower rectum, where it becomes impacted, thus cutting off the circulation in the small blood vessels, causing painful engorgements known as piles and hemorrhoids. A continuance of these troubles often results in fissure, fistula or cancer. The trouble is seldom confined here. As a result of the blood poisoning we almost invariably find more or less dyspepsia, with decided derangement of the functions of the heart, liver, and kidneys, accompanied by headache and nervous debility, often verging on paralysis.—*Hall's Journal of Health.*

A GLUE for ready use is made by adding to any quantity of glue common whisky instead of water. Put both together in a bottle, cork it tight and set for three or four days, when it will be fit for use without the application of heat. Glue thus prepared will keep for years, and is at all times fit for use, except in very cold weather, when it should be set in warm water before using. To obviate the difficulty of the stopper getting tight by the glue drying in the mouth of the vessel, use a tin vessel with the cover fitting tight on the outside to prevent the escape of the spirit by evaporation. A strong solution of isinglass made in the some manner is an excellent cement for leather.—*Builder and Wood-Worker.*

Book Notices and New Publications.

We have received part No. 1 of a series of ten, intended by the publishers to complete a handsomely printed, instructive, and interesting work on *Modern Architectural Designs and Details*, containing 80 finely lithographed plates, showing plans, designs, and details in Queen Anne, Eastlake, Elizabethan, and other modern styles. The completed work will furnish a splendid addition to the library of every architect who secures it. Builders and owners desiring more perfected knowledge in the science of building houses will find it valuable. Bicknell & Comstock, N. Y., publishers. Price $1 each number.

Also, *The Slate Table*, designed for the use of slaters, quarrymen, architects, and dealers, with practical instructions to those unacquainted with Slate Roofing, exhibiting over 30 sizes of roofing slate, showing the surface in squares or feet covered by any given number of slate from unit or one to twenty thousand. By H. N. Stafford. Published by S. C. Pratt, No. 16 New Church st., New York. Slate roofing has not received any considerable attention as yet on this coast. Slate quarries in California are extensive, but the slate so far obtained from them is not equal to the Eastern article, and, therefore, has failed to obtain favor for roofing purposes. The durability of slate is well understood, and whenever a good article can be found on this coast its use will become more general. The saline properties of our California climate, with its sea breezes, and the neglect of owners to keep their tin roofs properly painted, has created an adverse opinion of them. Redwood shingles wear away rapidly unless protected by repeated coats of paint; felt and asphaltum roofs remain rain-tight but a limited number of years, and a more lasting roof than either is desirable. This demand may ultimately be supplied by slate material. Slates may be used on almost any form of roof. We found no difficulty in applying them on the heavily *concave* roof of H. H. Bancroft's residence on the south-west corner of Franklin and California streets. They stand well.

Also, *The Student's Illustrated Guide to Practical Draughting*, by T. P. Pemberton. Published by the Industrial Publication Co., New York. A neat work, full of instructions to Machinists, Mechanics, Apprentices, and Students, giving treatises on draughting instruments, the art of drawing, etc., with numerous illustrations. Price $1.

Also, *The Workshop Companion*, a collection of useful and reliable Receipts, Rules, Processes, Methods, Wrinkles, and practical information, including suggestions and instructions alike valuable in household and workshop. It treats upon the simpler and by all easily comprehended forms and methods of preparing and using cements, receipts for making inks, cleaning marble, etc. It refers to alloys, lacquers, steel, brass, wood-finishing, polishing powder, and innumerable other matters. Price 35 cents.

Either of the works noticed can be obtained through the office of this journal.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distintt, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

BUSINESS MANAGER OF ARCHITECT.—I have a roof, the span or width of which is 48 feet, and the height 18 feet. It is rectangular, hipped at each end. I can figure out the length of my common rafters easily enough, viz., 30 feet. What will be the length of my hip rafters? Also, how do you get the length of the latter?

BEGINNER, Ione City.

ANS.—If your rafters are 30 feet in length, (I notice that does not allow of any projection) by the same rule your hip rafters will be 38.41 feet. You have simply worked out the problem of finding the hypothenuse, two sides being given. Apply same principle to the hip rafter—regarding a common rafter as one of the sides, and half the width of the roof the other side, of your triangle.

BUSINESS MANAGER OF ARCHITECT.—Will you please let me know if there is a simple rule to find the circumference of a circle, diameter being given?

A. F. Q., Salinas.

ANS.—Multiply the diameter by 3; add one seventh part of the diameter to the product; their sum will be the circumference. Very simple.

BUSINESS MANAGER OF ARCHITECT.—I have a large collection of postage stamps, but do not know the names of the busts on the different stamps. Will you please inform a young subscriber upon this point? JENNIE, S. F.

ANS.—Although the answer to this question has appeared in every paper in the country, we will oblige our young friend this time

One	cent	Franklin.
Two	"	Jackson.
Three	"	Washington.
Five	"	Taylor.
Six	"	Lincoln.
Seven	"	Stanton.
Ten	"	Jefferson.
Twelve	"	Clay.
Fifteen	"	Webster.
Twenty-four	"	Scott.
Thirty	"	Hamilton.
Ninety	"	Perry.

ED. ARCHITECT.—Passing a Chinese wash-house one evening, we stopped to notice the occupant counting upon a board. My companion remarked that every finger of the hand is used by the Chinese in counting, each one having a different number. Will you please tell me if she is right?

CURIOSITY, Alameda.

ANS.—Every finger of the *left hand* represents nine figures, as follows: The little finger represents units, the ring finger tens, the middle finger hundreds, the fore finger thousands, and the thumb tens of thousands.

BUSINESS MANAGER OF ARCHITECT.—Will you please to let me into one of the secrets of the "perfumers' art," and tell me how it is possible to make so much "triple extract of heliotrope," when I know from my extended travels, there is very little indeed of heliotrope flowers cultivated for the perfumer to use?

CURIOSITY, San Jose.

ANS.—I do not know that it is just right to expose the secrets of the perfumer or any other art or profession. But as "Curiosity" is an old friend, I will just this once let her know how to make essence of heliotrope without the flowers. Add to a tincture of vanilla a small proportion of oil of bitter almonds; add essence of rose, and orange flower, *q. s.*, and you will have an excellent extract of heliotrope. G. H. W.

BUSINESS MANAGER OF ARCHITECT.—Why are Mansard roofs so called?

ENCA, Berkeley.

ANS.—So called after a celebrated French architect of that name.

BUSINESS MANAGER OF ARCHITECT.—In a conversation the other day, we had quite a dispute about the value of the different oils used in perfumery. I claim that the otto of roses is the most expensive used. What is your opinion in regard to the most costly otto used?

UNONA ODORATISSIMA.

ANS.—You most assuredly have signed a very curious "nom de plume." The otto obtained from the plant, the botanical name of which is the same as your signature, is worth considerably more than the otto of roses. Its odor resembles a mixture of jasmine and lilac, but cannot be likened to the scent of any other flower. G. H. W.

BUSINESS MANAGER OF ARCHITECT.—In your September number you inferred that at a future time you would inform us in regard to the cause of dry rot in timber. Will you please insert in your next some particulars in regard to it?

L. N., Healdsburg.

ANS.—Dry rot is a diseased state incident to timber, which reduces its substance to a mass of dry dust, by decomposing the fibers. It is caused by various species of fungi, the names of which I cannot at present call to mind. The chief causes of dry rot are, stagnation of air, as under the floor of a building or behind wainscoting, and imperfect drying of the timber. Well-seasoned timber will resist the action of the fungi for a long time. The most successful preventive of dry rot is a solution of corrosive sublimate introduced into the pores of the wood by the agency of an air-pump.

BUSINESS MANAGER OF ARCHITECT.—At a friendly meeting of several plasterers last evening, the remark was made that hair was formerly used in the white mortar, or setting-coat. A majority of those present were of the opinion that it never was so used. We leave the question to you to decide which is the correct opinion. P. U., Marysville.

ANS.—Hair *was* formerly used, in the proportion of one bushel of hair to six bushels of lime.

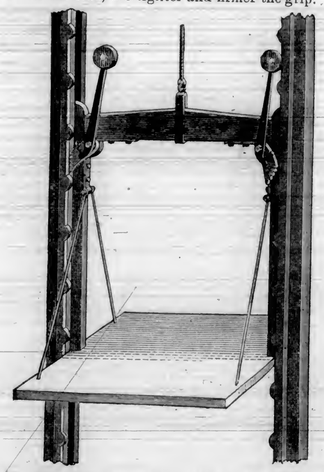
BUSINESS MANAGER OF ARCHITECT.—Where does it grow, and what kind of wood is it, the name of which is *ellahneel?*

SPECIMEN GATHERER, Sonoma Co.

ANS.—The wood is obtained from a small tree that grows in the East Indies. It is of a light red color, and is chiefly used in temples and furniture.

B. E. Henriksen's Safety Clutch.

The annexed cut is an illustration of *B. E. Henriksen's Patent Automatic Safety Clutch for Elevators*:



This safety clutch consists of two upright trip levers each provided with a solid rubber roller at the top; and mounted at the bottom on a horizontal shaft secured to the frame of the cage and supporting two toothed cams or dogs. A corrugated strip of wood or cleat is applied to one side of each of the guide posts of the elevator, in such a manner that the rollers on the trip levers will be caused to rotate along their corrugated face. At the ordinary rate of speed these rollers pass over the projections and fall back in their places by reason of their weight and position, but any excess of speed caused by the fall of the elevator brings the rollers in violent contact with these projections, which throwing the levers outward causes the cams or dogs to engage into the guide posts, thus forming a wedge or brake which instantly stops the cage. The action of this safety clutch is such that the more rapid the fall, the quicker the action; the heavier the load, the tighter and firmer the grip.

Mr. Henriksen, at the last Mechanics' Institute Fair, had a full-size elevator in operation, in order to demonstrate the particular working of his invention. This elevator contained a load of about 600 or 700 pounds, the average load of ordinary elevators. The cage was run up and down at the usual rate of speed; then a brake was opened and the cage permitted to fall violently as if the cable or some part of the machinery had broken. This caused the clutches to perform their duty by instantly stopping the cage. These tests were made from four to twelve times every night for four weeks, but the safety clutch never failed to act.

This form of clutch is to be preferred to those whose action depends upon springs, or upon the breaking of the main cable. All the elevator accidents which have occurred up to this present time have been caused by some defect in the machinery; we have yet to hear of any caused by broken cable. The following are among the advantages possessed by this safety clutch over all others. It has no springs, tumblers, nor triggers, liable to become gummed, stiff, or otherwise unreliable.

It will work as well on an empty cage as upon one loaded to its utmost capacity. The elevator of the Johnson Building, No. 120 Sutter street, which was prevented from falling by one of these clutches on August 17th, 1880, contained six persons, weighing 900 or 1100 pounds, (nobody hurt). The elevator of the California Furniture Factory, 224 Bush street, which was stopped from falling on September 28th, 1880, contained a load of furniture, a large plate mirror and the elevator boy, about 400 pounds in all, (no damage).

This safety clutch in in use at the

Johnson Building ..... 120 Sutter street,
Thurlow Block ..... 126 Kearny street,
San Francisco Stock Exchange ..... Pine street,
Haker & Hinz ..... 545 Market street,
W. & Y. Sloan ..... 522 Market street,
J. Cerf & Co ..... 517 Market street,
W. Cohn & Co ..... Battery and Bush,
California Furniture Co ..... 224 Bush street,
New City Hall .....
Halleck Block ..... Halleck and Sansome,
Levi, Diamant & Co ..... 107 Battery street,
Franco American Perfumery Co .. 109 Battery street,
P. Berwin & Co ..... 111 Battery street,
Pioneer Woolen Mills ..... 115 Battery street.

☞ *Mr. Henriksen received the* SILVER MEDAL *awarded by the Mechanics Institute for the best Safety Clutch exhibited during the last Fair.* *3m.

SAN FRANCISCO, June 1st, 1880.

We, the undersigned Architects, do hereby certify that we have carefully and critically examined B. E. HENRIKSEN'S PATENT AUTOMATIC SAFETY CLUTCH, and by reason of its simplicity, cheapness, durability, and positive and prompt action, consider it to be the best and most reliable of the kind. We therefore cheerfully indorse and recommend this Safety Clutch to all persons requiring the same.

DAVID FARQUHARSON, 502 Van Ness Av.
P. HUERNE, Thurlow Block.
KENITZER & RAUN, 601 California St.
WOLFE & SON, 240 Montgomery St.
THEO. A. EISEN, 330 Pine St.
WILLIAM CURLETT, 330 Pine St.
WILLIAM MOOSER, 302 Montgomery St.
J. MARQUIS, 39 Sutter St.
GEO. BORDWELL, 507 California St.
WRIGHT & SANDERS, 418 California St.
P. J. O'CONNOR, 413 Bush St.
T. J. WELSH, 302 Montgomery St.
WM. PATTON, 411 California St.
AUGUSTUS LAVER, Stock Exchange.
HATHERTON & PELTON, 330 Pine St.
*2m.

Market Reports.

GLASS.—But slight changes have taken place since our last. The factories in the East are still pushed to their utmost capacity. Belgian glass has advanced 10 per ct., American glass the same. There is considerable feeling in regard to the latter, and we should not be surprised to see it make quite a raise. In spite of the activity of the manufacturers, they are as yet unable to accumulate any stock ahead, and the present state of the market is caused by endeavors to supply the demand for *actual wants*.

PAINTS.—Prices have not changed. Demand is active, and liable to continue so for the next month. After the first rains is a favorable time with our farmers to paint their houses, as then the dust will be settled, and a nice clean-painted house is so pleasant to gaze upon during the long winter months.

LUMBER AND HARDWARE.—No change in the price of lumber or shingles. Nails remain at same prices, although "*before night we may receive notice of a change.*" That is the way one of our principal firms informs us. The market for doors and windows is very firm, with a good demand.

OREGON PINE.

Common Rough,	up to 40 feet, per M feet	...	$20 00
"	40 to 50 " "	....	21 00
"	50 to 60 feet, per M feet	...	22 00
"	60 to 70 " "	....	23 00
"	60 to 80 " "	....	24 00
Refuse Rough		....	16 00

Common Rough, sized with planer $2 additional on above rates, per M feet.

No. 1 Flooring, 6 inches and over, and Stepping ..... per M feet 27 50
No. 1 Flooring, 4 inches and under, and 1¼ x 6 Flooring ..... per M feet 30 00
Rough Clear for flooring, $1 less than above rates, per M feet.
Second quality Flooring and Stepping, per M feet 22 50
Ship Plank, rough ..... per M feet 25 00
" planed 1 side .... " 28 00
" planed 2 sides ... " 30 00
Deck Plank, rough ..... " 28 00
" dressed ..... " 32 50
Laths ..... per M 3 50

REDWOOD.

Rough Merchantable ..... per M feet $20 00
" Refuse ..... " 16 00
Surface, No. 1 ..... " 30 00
Surface, 1 x 8 ..... " 30 00
" 1 x 6 ..... " 28 00
" No. 2 ..... " 22 50
Rustic, No. 1 1 x 8 ..... " 28 00
Rustic, No. 2 ..... per M feet, $25 00
" 1 x 10 ..... " 30 00
Rustic, short, 8 to 10 feet ..... " $25 00
" under 8 feet ..... " 14 00
T. & G., 6-inch, 12 feet and over ..... " 27 50
" " 7 to 11 feet .... " 25 00
" " under 7 feet .... " 20 00
" " No. 2 ..... " 20 00
" Beaded, 12 feet and over " 27 50
" " 7 to 11 feet .... " 25 00
" " under 7 feet .... " 20 00
Half-inch Surface ..... " 27 50
Pickets, fancy ..... " 20 00
" rough, pointed ..... " 16 00
Pickets, rough, square ..... per M feet $14 00
Siding, ½-inch ..... " 20 00
Port Oxford White Cedar per M feet $30 00 to 45 00
Sugar Pine ..... " 30 00 to 50 00
R. W. sawed shingles ..... per M 2 25
Battens, ½-inch 75

HARDWARE AND NAILS.—We note the following prices:

10 to 60 pennies, are quoted at $4 00
8 " " " " 4 25
6 " " " " 4 50
5 and 4 " " " " 4 75
4 and 5 pennies, brad heads at 5 25
6 " " " " 5 50
8 " " " " 5 25
10 and upward " " " 5 00
3 penny fines " " 7 50

Total import of nails since January 1st, 130,466 kegs, 2,383 half-kegs.

LUMBER.

We are indebted to the *S. F. Journal of Commerce* for the following very full report of receipts and exports of lumber:

Receipts since our last:

Lumber, feet	2,923,227
Shingles	1,173,000
Laths	120,000
Wood, cords	460
Hoops, bundles	51
Shakes	117.000
Staves, bundles	4,225

Total receipts since January 1st:

Lumber, ft	158,468,342
Shingles, No.	52,979,032
Laths, No.	15,097,800
Wood, cds	20,000
Piles, ft	63,000
" No.	4,914
Cedar, logs	3,485
" ft	72,980
Rosewood, logs	32
Shakes	1,494,625
Pickets, No.	20,000
Hoops, bdls	7,775
Headings, bdls	58
Staves	13,799
" bdls	5,710
" crds	23
Railroad Ties	288,041
Posts	367,483
Sugar Pine, ft	2,190,000

Barrel St'k, pkgs		27,580½
Spars		98
Wool Slats		74,000
Stave-bolts		78,000
" cds		317
Telegraph Poles		1,508
Ship-knees		340
Receipts for month of September:		
Redwood, rough, ft	3,693,132	
do do clear	648,245	
do dressed	2,543,691	
do do ½ inch	8,356	
do siding, do	36,392	
do battens, do	25,165	
do pickets, rough	37,841	
do do dressed	12,660	7,005,482
Pine, rough	7,960,019	
do dressed	1,415,711	
do fencing	758,462	10,134,192
Spruce, rough	1,950,423	
do dressed	15,199	1,955,622
Cedar, rough		181,850
Hardwood, maple		
do ash		3,000
Total		19,290,146

SUNDRIES.

Shingles	13,484,500
Laths	2,443,300
Shakes	558,875
Ship-knees	
Piles, lineal ft	97,863
Redwood Posts	16,722
Railroad Ties, rifts	59,727
Broom-handles	49,000
Spanish Cedar Logs	1,008
Spars, pieces	

Exports of Lumber since November 1st:

		Feet.	Value.
Nov. 1	Bertram, Rigby, Queen.	18,000	$360 00
1	West York, Cork	9,000	180 00
1	Francis Thorpe, Queens'tn.	5,000	100 90
3	Granada, Central America	20,000	380 00
3	Granada, Panama	17,600	1,059 86
3	Cormorant, Queenstown	9,000	180 00
3	Tamaya, Liverpool	6,000	120 00
3	City of Glasgow, Queens'tn.	16,000	320 00
4	Sir Wm. Wallace, do	15,000	300 00
4	Parthenia, do	19,500	400 00
4	Kaisow, do	9,000	180 00
4	Edinburgh, do	20,000	500 00
5	Alfred Adams, Acapulco	17,000	340 00
5	Grassmere, Queenstown	17,000	340 00
6	Annie Johnson, Dublin	13,000	260 00
6	Pharos, Liverpool	34,000	680 00
Total		285,100	$51,359 86

Exports of Shingles since our last:

		Value.
Nov. 3	Granada, Cen. America	31,000 $66 00

Exports of Shooks since our last:

		pkgs	Value.
Nov 5	Alfred Adams	784	$450 00

The market is a little more active and demand is better than has been, as building operations are a little more active.

We quote cargo rates: Pine—Rough, $16 ₱ M ft.; No. 1 Flooring and Stepping, $24.50. Redwood—Rough, $16; Surfaced, $23. Retail rates: Pine—No. 1 Flooring and Stepping, $30; Rough, $20. Redwood — Rough, $20; Surfaced, $30; No. 1 Rustic, $30; Flooring, $27.50; Tongued and Grooved Beaded, $27.50; Fancy Pickets, $20; Rough Pointed Pickets, $16; Rough Square Pickets, $14; Shingles, $2.25 ₱ M.

CEMENT, PLASTER, LIME, ETC.

Total imports since January 1st:

Cement, barrels	51,899
do casks	6,280
Fire-bricks	103,280
Plaster, barrels	2,850

Receipts of California Lime since our last: 1,285 barrels. Total since January 1st, 102,722 barrels.

The market is quiet and inactive.

We quote Eastern Cement, Rosendale, $2.25@2.50; other $2.12½; Portland Cement, $4.50@5.25, as to quality and brands. Plaster—Eastern, $3.25@3.50; do. Golden Gate, $2.75@3.00. Lime—Santa Cruz and Sacramento, $—@1.50. Fire-bricks—$35@40, jobbing at $40@50, as to brand. California Brick—Hard, $10@12; Soft, $7@8; Red, $9@10.

Building Intelligence

The past month has been extremely dull, as far as the lotting of contracts is concerned. The principal cause of this apathy was the Presidential election. We do not think that in any election ever held in this State, there has been such an interest taken by the solid, substantial business men as was manifested during the last campaign. Most of our capitalists were so engrossed with the result, that they gave up all thoughts of building till they were satisfied which party was to have the reins of government. We have heard many expr.ess the opinion that now all issues were decided, we would experience a regular "Eastern Boom" in the building line. We do not think so, however. A slow healthful growth is to be expected and will surely take place. Sandlottism has been suppressed, or rather died a natural death. The all-absorbing Presidential election has been decided. Every one seems to breathe easier, and move about as if they had an end to accomplish; while law and order reign supreme. Of course all this creates confidence, and many are the plans projected for future improvements. We know of a great many buildings that will be commenced in the near future. In the meanwhile, our mechanics are all busy. Those that are not, can readily find work through the country. Our farmers all feel good, and have done an immense quantity of work, repairing fences, barns, and houses during the last three months; and sensibly, too, a great many have built their own warehouses, instead of paying storage. Farmers should think of the fact, that lumber is always useful, and a little lay-out in building their own store-houses will amply repay them in the end, as the lumber can always be used for fencing, etc., in case they sell their future crops as soon as they mature. There have been an unusual number of plans *"figured on"* during the past month, that have not *"gone ahead"* on account of differences between owners and builders in regard to cost, etc. But *why* it is that this occurred so many times lately is a question that we would like owners, as well as contractors, to explain, so that each can see the various difficulties in the way, and pave the way for a better understanding in the future. We report a more general feeling of confidence in business circles than has been experienced for years.

SAN FRANCISCO.

Two-story frame building on corner of Haight and Buchanan streets. Owner, R. McElroy; architect, J. Marquis; contractor, Fletcher. Cost, about $8,000.

Three-story store and dwelling on north-west corner of Pine and Laguna streets. Owner, E. J. Healey; architects, Curlett & Eisen; contractor, David Perry. Cost, $5,000.

Two one-story cottages on the corner of Steiner and Waller streets. Owner, Wendell Easton; architects, Curlett & Eisen; contractor, F. Gauteran. Cost, $2,500.

Frame dwelling on south side of Sacramento street between Buchanan and Webster. Owner, W. E. Brown; architects, Curlett & Eisen; contractor, John Robertson. Cost, $8,500.

Frame residence on corner of Sacramento and Buchanan streets. Owner, W. E. Brown; architects, Curlett & Eisen; contractor, J. Robertson. Cost, $15,000.

Two-story and basement brick building at No. 10 Bush street, junction with Market street. Owners, Newman & Samuels; architect, Mooser; contractor, F. Klatt. Cost, $5,000.

Frame building on north side of Sutter street between Polk and Van Ness Avenue. Owner, —— Eisenberg; architect, Schmidt. Cost, about $7,000.

Alterations and additions to St. Paul's Church on California street near Octavia; architect, H. D. Mitchell. Day's work.

Three-story and basement brick building on Commercial street between Montgomery and Leidesdorff. Owner, O. D. Baldwin; architect, Moore; contractor brick work, George Richardson; balance of work done by owner; day's work. Cost, about $7,000.

Two-story double house on Post street between Buchanan and Webster. Owner, J. Spiers; architects, Percy & Hamilton; contractors, Gray & Lombard. Cost, $6,045.

Additional story and alterations of house on Sherman street between Seventeenth and Eighteenth. Owner, M. King; builder, Wilcox. Day's work. Cost, about $800.

Five-room house on Sherman street between 19th and 20th. Owner, Frank Geary; builder, Wilcox; day's work. Cost, about $1,200.

Additions to house on Eureka street between 19th and 20th. Owner, A. Davidson; builder, Wilcox; day's work. Cost, about $500.

One-story dwelling on corner 21st and Mission, size 20x51. Owner, Mrs. McCarthy; contractor, R. Doyle. Cost $1,000.

ACROSS THE BAY.

Scotch granite monument in the Cemetery at Oakland. Owner, Jos. S. Eastland; architects, Curlett & Eisen. Cost, $5,000.

Two houses on Peralta street, Oakland. Owner, Mr. John Zeigenbein.

Two-story store and dwelling on Park street, Alameda, near the Bank. Owner, Hayden; contractor, Dawson. Cost, $5,000.

Webster street near Buena Vista avenue, Alameda, Mr. A. Denke is owner and builder of a residence.

At Ceres, in Stanislaus County, a grist-mill is being built.

Catholic Church at Saucelito; architect, Clinch; contractors, Kennedy Bros. Cost, about $2,000.

Five-room cottage on Webster street near Buena Vista avenue, Alameda. Owner, G. W. Wheeler; contractor, James Millington. Cost, ——

Residence on Alameda avenue between Park street and Central avenue. Owner, W. H. Dame.

Additions to house on Santa Clara avenue, Alameda, owned by Mrs. E. J. Minturn; contractor, H. M. Colton.

Nine-room cottage at corner Buena Vista avenue and Schiller street, Alameda. Owner, Wm. Rand; contractors, Haskell, Smilie & Co. Cost, about $2,500.

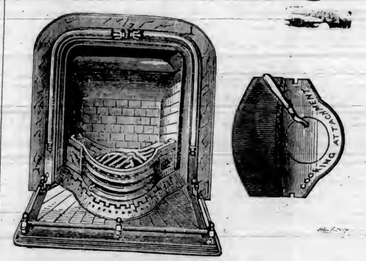
Two-story house on corner of West End and Taylor avenues. Owner, F. Collier; builder, Mr. Denike. Cost about $2,800.

THE VERY LATEST INVENTION

—AND—

IMPROVEMENT IN

GRATES.



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VOLUME I. NUMBER 12. SAN FRANCISCO, DECEMBER, 1880. $2.00 per Annum in Advance. Single Copies, 20 Cents.

The California Architect

—AND—

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

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and to our friends and well-wishers east of the Rocky Mountains, to assist by their subscriptions and personal influence in the permanent establishment of the FIRST AND ONLY ARCHITECTURAL JOURNAL ever published west of the great natural ridge which, to a certain extent, segregates California from the commonwealth of States.

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First Volume Completed.

The present number completes the first volume of this journal as a *monthly* publication. Its second will commence with the January number, 1881, or with the *"quarterly"* of 1879 added, its *third* volume. Its merits and defects alike have passed to the eternal record, from which not a single line or word will ever be effaced or expunged; and neither success nor failure in the future will in any manner affect that which has passed.

The past cannot be recalled, but by its experiences we may learn how to shape and improve the future. This will be done as best judgment may direct, and if circumstances and prospects do not deceive us, the past is but an outline of the future. This much has certainly been learned — that coin, experience, energy, and enterprise are indispensable prerequisites in the establishment of a journal.

"We need just such a journal" has been expressed by thousands in San Francisco. If so, then it should receive universal support from all classes, not only of architects, contractors, mechanics, and artisans, but the COMMUNITY ITSELF; as its columns contain monthly, matter which should be read by every owner of real estate, and every tenant, who by force of circumstances is required to dwell in houses built by others, and sometimes without any regard to those necessary sanitary and other precautions so essential to continued life and health. Its columns will contain valuable instructions and suggestions in reference to all matters involved in the proper construction of all classes of edifices, together with a large amount of matter suitable for the general reader. Much that has appeared in its columns has been local in character and interest, and so of necessity; for in no community have less uniformity of procedures, or greater irregularities prevailed in architectural and mechanical circles.

Architects and mechanics have come to this coast from all civilized portions of the globe, some with self-conceit in their exceptional abilities, and the assumption that they, above all others, were the true embodiment of perfection in the science attempted by them. Men of this class are always an incongruous element in societies, creating sentiments, which if practiced universally by all others, —each being a world within himself—would destroy all common sympathies, and render life a condition of individual isolation, in which the meanest of all human frailties—selfishness—would predominate. Those who fall into this error simply illustrate the ignoble qualities of their natures; for only fools accept the doctrine that any man is wise and great beyond comparison, or so laden with superior qualifications as to make him superior to others—except perhaps in some specialty, the outgrowth of special advantages, or some peculiar freak or gift of nature; while in other respects the school-boy may be his master.

Others have come with indifferent architectural and mechanical training, and limited practice, creating in this "new field," as far as their influences have reached, imperfect and faulty methods, in marked contrast with established theories and correct principles. Others have come, surcharged with the exact correctness of methods, rules, and practices prevailing in the city or locality of their former experiences, from which all departures and variances are considered infractions and errors.

Others have come, proclaiming themselves to be practical architects, who have scarcely been able to draw parallel lines upon paper, or describe a circle with a pair of compasses. These, to "build themselves up," and "make business," have been forced to the cunning exercise of their wits, and by pretentious and assumed qualifications, imposed themselves upon owners and the profession, neither to the advantage of the one nor the credit of the other. Others have received their architectural and mechanical education in California, which, to a large extent has enabled them to gain a knowledge of the many views and practices adopted in the various offices; for however far apart and estranged architects themselves may stand, the youths and employees of the respective offices intermingle socially, and "talk matters over," connected with the offices in which they are or may have been engaged, and in this way obtain knowledge of the "many ways of doing things," and so secure more general and varied information. Consequently, inharmonies are but natural results, and these never produce pleasant conditions; to counteract which, and create and establish better views, sentiments, and feelings in the profession, to induce better understandings, and more nearly right systems and practices among building contractors and mechanics generally, and to modify and correct the views of owners, so as to effect a general good result, is the great work, aim, and object of this journal. But to do all this will require a large amount of money, and we appeal to every citizen of this Coast, that if the purposes in view are good and worthy, let there be no delay in forwarding subscriptions personally, and securing others for the year 1881.

Society of Architects.

The formation of a Society of Architects in this city, for mutual advice, consultation, and protection, has been frequently urged in this journal, and through the columns of the daily papers; but so far without any positive result. A large number of the members of the profession, among them many of the most prominent, have signified their approval in earnest terms, and express the opinion that such an organization, founded and perpetuated upon broad, unselfish, and honorable principles, would greatly advance the common interests of the profession, secure for it its entitled position, and establish for it a reputation commensurate with its elevated character. It is surprising that men of the intelligence enjoyed by a majority of the architects of this city, should permit so hurtful an apathy to continue as that which prevails in this connection. Strongly developed circumstances combine to render a movement of this character advisable, proper, and wise.

The arguments which favor, justify, and affect organizations alike among physicians, lawyers, commercial men, merchants, and other intelligent classes, are equally forcible in reference to the architectural profession. Viewed in its true light, architecture is a science of perpetual development, ever revealing new features and presenting fresh propositions for the mind to contemplate and comprehend, and no man lives, nor ever has lived, who has delved to its deepest depth, or ascended its greatest heights. Forever unfolding and revealing something new, either in special principle or in beauties of form and design, its fountains of elegant things in lines and combinations have never ceased to flow, and as long as time itself shall endure, there will be architectural lessons to learn, problems to solve, and beauties to comprehend and delineate. Why, then, as members of this great class—this universal school, which ushers none from its portals perfected in knowledge for all time—should we remain opposed to ourselves, to our common interests, by the exercise of a spirit of opposition and jealousy toward each other—a spirit by no means in harmony with that which is the soul of the science we represent.

Segregation and self-conceit befit the narrow-minded, who fear to unfold and impart *to* others the knowledge in part received *from* others. As much or more than any other pursuit in life, architects are perpetual *learners*, finding here and there some new thought or idea, not always of their *own* special *creation*, but suggested by some object or happening, some development in nature, whether the entwining vine, which whispers by its silent voice of beauty or the dancing sunbeams upon its leaves, "imitate." Or the fallen tree, after passing through the ordeal of the woodman's ax, the steam-driven saw, and other mechanical appliances, opens out into a beautiful book of superbly rich and curiously formed grains and figures, furnishing the subject, and inviting the imaginative mind to contemplate what the Almighty Architect of the universe has done, through the agencies of soil as the home of the roots, through which life is imparted to the trunk and limbs—quietly yet daily maturing grandeurs which in due time come to man in wondrous forms of perfection and beauty.

Sometimes the sterile rock and the desert waste add their teachings; while forests and vineyards repeat their lessons, teaching principles of strength and firmness, combined with proportions and symmetry of form and shape. And so on through all the realms of nature, the great God-given book of beautiful things lies open before men, and architects, also by nature's God endowed with minds and intellects to grasp and utilize the liberal gifts of His hands, simply demean themselves by drawing around them individually the self-woven mantle of great esteem, which sometimes but poorly fits the form enrobed.

Learners are we all, whose faculties admit enlargement, and those who have gathered in a full store for life have ceased to live aright, and should in silence pass away as creatures who have stepped aside from the ordinary work of time to wither as the fallen leaf. When men cease to *live and learn*, they have passed the period when their living is right and profitable. Such men are drones in the active, busy life of man, where all are needed to complete the order of things as arranged by heaven's decrees.

Hence, as there is more to learn, and the fountains of knowledge are still flowing and free, would it not be wise in the profession in San Francisco to organize and labor for better understandings, better harmonies, purer conceptions, more correct methods, and general results full of profit and advantages to all. Suppose some have acquired a little better understanding in architectural principles, those who possess wealth of mind and intellect can afford to give, and not impoverish themselves; while of certainty the humblest may their mite throw in, and all may something learn. It is the smaller streams, not the ocean's currents, that revolve the wheels which grind the finest flour.

A Justified Complaint.

An unfair and wrong practice has assumed considerable proportions in this city, the tendency of which is to render San Francisco an unfruitful field of operation for experienced and qualified architects. There is a certain class of contractors whose chief study appears to be the securement of advantages through and by which they may effect building engagements without competition. Many of these men frequent architects' offices, seeking to obtain contracts through these established and legitimate channels, and who, through the opportunities thus enjoyed, secretly, and without the knowledge of the principals, enter into private arrangements with the employees and lads engaged in the offices visited by them, to make plans "on the sly," "at odd times," and, if opportunity offers, during the day when the head of the office happens to be absent. The unfairness and dishonesty of this *modus operandi* of obtaining plans is transparent, as both the parties thus used, and those using them, arrange and plan to *hide and conceal* the work being done, so as to avoid detection by the man who pays his employees for their services, furnishes the office in which such questionable arrangements are being carried out, and the paper generally upon which such drawings are made. If such proceedings were right, fair, and *honest*, concealment would be unnecessary. The act of concealment is a confession of wrong on the part of the parties themselves, and we regret to state that there are contractors who assume and claim to be honorable and fair men, guilty of this, to say the least, *very small* practice. But this is not all—it requires the absolute sacrifice of truth to complete such operations in a majority of cases; for plans so made are generally presented to the parties who are asked to adopt them, as the workmanship of the party presenting them, while in fact their hands may not have made a single line drawn. But with many men truth is a very immaterial and secondary consideration, when personal interests are at stake; and in cases where its use is likely to overshadow coveted results, it is set aside as an impractical and unnecessary feature.

The wrong is equally great upon the part of the young men and employees who become parties to such transactions, as it is a practice damaging to the profession sought by them, demoralizing in its effects, and creative of a system in every sense wrong; for the reason that the science of Architecture can not be "picked up," but must be studied and learned by diligent application; and it amounts to a *moral outrage* that men who have spent years of life in acquiring a knowledge of the principles and practice of so responsible a profession, should be deprived of its emoluments and benefits by those to whom they are seeking to impart like knowledge with their own, or those who are paid for *faithful* services—not covert and double dealing. In all such cases, the principal of the office is made a sufferer; for if the work is "done at home," the eyes strained by overtaxation under gas or lamp-light are dull for the work of the succeeding day; and spare after-regular office-hours thus employed are crowded into, or taken in part from the time due in the office; and excuses devoid of truth are invented for "being late," and like inventions resorted to for the purpose of securing leave from the office before the regular time. So that in every sense the thing complained of is bad, and should be suppressed, and practicing architects would only be true to themselves and the profession, by dismissing peremptorily those in their employ found guilty of such acts, and exclude from the privilege of figuring, those who instigate such opportunities; and a rule generally established in the profession to notify each other of parties so implicated, with the understanding that none such shall receive engagements, would have a corrective influence.

This condition of affairs is another strong argument in favor of a SOCIETY OF ARCHITECTS. We have urged that great necessities exist for such an organization, through which its members might discuss and regulate existing irregularities, and by kind and friendly understandings, arrive at and establish such rules as would best serve to promote the common interests of the profession.

Again: By the means related, owners are duped into contract arrangements with parties upon wholly false representations; and although professedly for the purposes of economy to the owner—"saving the expense of an architect"—the covert design in all such cases is to avoid the watchful eye of those qualified to detect errors, omissions, and poor workmanship, and leave matters in shape for easy handling by the parties thus conniving, who, as a rule, pocket in extra profits on such work, far more than the amount which plans and superintendence in the regular way would cost. If owners were governed by intelligent reasoning, they could reach no other conclusion than that men who "do not want to work under the supervision of a competent architect," or who express an anxiety to induce owners to place matters in the hands of special parties not of the highest reputation for abilities, and cry down and defame others for being "hard on the contractor," "all for the owner," etc., must have motives in view, not by any means specially favorable to owners' interests.

Our young men and employees should bear in mind that this system, continued and enlarged, will work ruin upon the profession, and that after they have spent the best years of life in its study, there will be no room for the practice of their more matured acquirements, and they will be compelled to seek other fields, or enter competition with inexperienced lads, or men who live by huckstering their worthless services around at one-fourth compensation.

To the Mechanics of California.

That there are in San Francisco and on this Coast many working-men—by which we mean men who labor as we do daily for our daily bread, in contrast with those who have defiled and to a certain extent brought disrepute upon the laboring classes—who are competent to write up intelligent and edifying articles for publication, there can be no doubt. That there is a necessity that they should do so is also a fact. The columns of this journal are open and free to all such, and we invite all to use their pens and furnish us their views upon any pertinent subject of general interest. Some have said, "I cannot write well enough." "I am a poor writer," etc. In answer to this we state, send us your articles in the best shape you can, and if need be we will assist in correcting errors, and trimming to make the matter readable. We want practical facts, ideas, and suggestions, to reach which is the purpose of this publication, and which, presented in intelligent shape, in language clear and comprehensive, will be quite as acceptable as less practical matter containing all the force and beauties of the English language, from the pens of the ablest scholars, and masters of the art of composition.

Write! Write the best you can, and show to the world that there are in California and on the Pacific Coast, intelligent mechanics, capable of expressing their conception and understanding of mechanical principles and theories, with a force and clearness which will win for them a fair reputation in other parts of our great country, and in distant parts of the world, which are reached monthly by the circulation of this journal. We hold it to be a duty incumbent upon every man, to do all that may be within his possibilities, in defense of his pursuit in life, if it be honorable and honest. This duty may be omitted and avoided, but they play their part best who play it well.

Brother Architects of the Pacific Coast, Mechanics and Artizans ALL!—give us your support, not only to the amount of yearly subscription, but by your personal influence, your pen, and your hearty approbation, so far as our work justifies approval.

We also invite contributions for our columns, and subscriptions, from all *Manufacturers, Inventors, Engineers, Farmers, and Producers*, in all lines and branches, And "last but not least," we especially invite *property owners* to present their views, experiences and advice, as by a general exchange of thoughts and opinions, right understandings may be reached, and errors corrected.

California Abroad.

The people of no other State or portion of the world, have been less *correctly* understood, nor more grossly misrepresented, than the inhabitants of the Pacific Coast, particularly those of California. Even "Reverend Men," "Divines," professed teachers of truth and rightousness, have forgotten the Ninth Commandment, and proclaimed most unwarrantable fabrications, and fearfully garbled statements. Fair credit for things achieved is withheld, where honest representation of facts would do honor to the Golden State and its people. The bright plumed bird of the western coast of freedom's domain, has been and is the object of merciless plucking, by the pens and tongues of many who have come among us, only to return to their homes and reproach us. If the history of California was known only through the representations made of it, its resources, people, moral, religious, social, mechanical, manufacturing and other interests, by some who have "told their story," the deduction that we are a fearfully immoral, non-progressive and debased people, would be a reasonable one; while to ourselves and those who rightly understand us, our position as a State stands in fair comparison with others in a general sense, and in some particulars much in advance of longer established places.

In the correction of these errors, and in the presentation of real facts and conditions, this journal is having, and will enjoy increased influence; as within the coming year we expect to extend our circulation to all parts of the civilized world. At present it is circulated in every State in the Union, in London, Ireland, Australia, Hawaiian, and Fiji Islands, the British possessions on this Continent, and in South America.

These facts should induce a universal interest in its *liberal support*—a support which will enable us to devote our undivided attention to its improvement and the production of a journal inferior to none published. We ask this in the common interest of ourselves, and every interest represented through its columns, carrying with them the best interests not only of California, but the entire Pacific Coast.

Students of Architecture.

Young men, lads, and boys who enter upon the study of the profession of Architecture, cannot estimate too highly its dignified and elevated character, and the responsible duties imposed in its practice. The mere matter of making sketches, lines, figures, and even plans and designs for buildings, is but the schoolboy part, which may be attained by any attentive scholar, possessed of fair intelligence, and an aptness of thought and conception running in that direction. But these acquirements alone by no means comprehend the Science of Architecture, to which the mere mechanical artist, or picture-maker, stands as the early dawn to the meridian sun-light; the former being, in a large degree, the efforts of the eye, a steady and ready hand, and the faculty of imitation and conception, and a fair proportion of originality of thought; while the latter, fairly mastered, is the result of earnest and correct study, unceasing thought, and daily application of deep thinking mind-powers. Men may become masters of the *arts* in Architecture—the pencil, paper, pen and brush work—to whom its *sciences* would forever remain incomprehensible mysteries.

We advise every youth, whose thoughts incline to Architecture as a life pursuit, to become a cabin-boy, a sheep-herder, a street-car conductor, or anything else you please, if a deep and earnest intention to reach the soul, the deeper, more important, and indispensably necessary attainments do not influence such thoughts and purposes. Without these, failure is sure to follow. The beautiful edifices of the world—those structures which stand as monuments of architectural skill and national pride—came not from the hands of merely skilled draughtsmen, but from the great storehouse of matured knowledge, the brains of competent, calculating, devoted, earnest men, many of whom have passed from earth in the prime of manhood, through overtaxing their physical and intellectual powers in the pursuit of still higher attainments and grander architectural results.

The rabble class of youths who contemplate no more, or in the main, no better than a "do the best they can" life, with no aim higher than financial gains in the easiest manner possible, without any consideration of pure principles and honorable procedures, are not only unfit to enter upon the study of the profession, but are damaging and demoralizing elements, which in time would check all advances and improvements in the science, leaving those world-renowned structures which have been given to the world in all nations, as monuments of departed glory.

In addition to all other considerations, honesty, truth, and justice are essential elements, and men uncontrolled by these motives and purposes are wholly unfit to represent the profession. We know that many assume "the livery of heaven to serve the devil," and disgrace and dishonor are imposed upon callings in life, through the irregularities and corrupt motives of *individuals;* and it is a matter of serious regret that the architectural profession cannot claim exemption from this class of persons.

Working-men—Their Opportunities.

If the working-men of our country would devote their unemployed time and energies to mental and intellectual culture and improvement, striving to grasp and comprehend the great laws of life in all their details and ramifications, they would vastly improve their condition in both a general and individual sense, and qualify themselves to practically solve the problem of their limitations and surroundings; and discover the only true and certain pathway to better circumstances. The man who attempts to scale the mountain's height, over rugged cliffs and craggy rocks, rather than seek the well-trodden paths that wind around steep and miry spots, will find his feet and limbs sorer and more worn and tired, than he who follows patiently yet perseveringly the road of perhaps greater length, but free from obstacles difficult to surmount or pass. "Cutting across fields and lots," sometimes shortens distances, but many who have attempted to gain such advantages, have found their progress impeded by swamps and dangerous interceptions, which have produced uncalculated and unexpected hindrances and regrets, and sometimes dangers and sufferings.

So with the discontented in life, who neglect natural and prudent methods, and seek to rise above the *fate of circumstances* by forced, irregular, and rapid means, or by obstinate resistance to the fixed and unalterable laws of nature and providence which demand earnest effort in the great work of time, seldom lavishing blessings upon those who *waste* the hours and opportunities for improvement.

It may not be, and we believe it is not possible for all to grasp in thought and comprehension the great and hidden springs that move men to action, sometimes in opposite directions to their judgment, all to develop and fulfill purposes which have their origin in the unseen powers that lie concealed within agencies not revealed nor understood by the human mind. Still the humblest may reach out his hand—not without reasonable hope that by persevering effort to attain the desired greater, there will come to them at least some of the coveted good things of a better and improved life.

When—not until—and only so far as men seek advancement in knowledge, culture, and better understandings, do they attain them. Those who fail, or from any cause neglect to improve the opportunities set before them, cannot reasonably hope to enjoy the good gifts of God, nor drink of the waters which issue from the fountains of knowledge, which never flow in the lower plains and miry swamps of human debasement, but above these, where nobler spirits soar, searching for and reaching after the more exalted and pure.

None are too humble of birth or means to make trial of the ascents which lie before those who honestly crave bounties of the Prince of all goodness. His bestowments are free to all who seek them wisely and perseveringly, but they are never sent to the indolent who waste their years in contentment with lesser allotments, or who fail to search for, and strive to secure to some extent, the good that is possible of attainment by all; thus robbing life of its purest joys, and dimming the light which might otherwise brighten and render more cheerful and pleasant the intercourses of time, and the better quality. men to perform well their part in the drama of life, in which all men are, and must of necessity be players.

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

Eye Servants.

More men serve faithfully and well when the watchful eye is upon them, than when intrusted upon their own fidelity. The master's rod more than principles of right governs the majority. There are a great many faithful, trustworthy, and willingly honest laboring men, but more who care not whether their pay is honestly earned, so that at the week's or month's end they receive it. The thought that such a course is undignified and dishonest is never entertained. The story of the boy and master is exemplified by the too generally prevailing practices of men in all branches of business. The master, discovering the boy's disposition to idleness, said to him: "Robert, it requires *one-half* my time to watch you." "Yes," said the boy, "and it takes *all* my time to watch you." There are thousands of full-grown men just like Robert, always watching opportunities to be unfaithful.

"It is Edited by an Architect."

Instead of its being a proper and legitimate objection, the fact that this journal is edited by an architect should be its greatest recommendation to general favor, not only among architects and mechanics, but with owners of real estate and the public generally. Certainly those who have devoted their lives, energies, and powers of mind and intellect in the acquisition of correct understanding of a profession, or the principles and practices of mechanical sciences, are the better qualified to represent such interests journalistically, than others who enjoy no better than a mere theoretical knowledge; although the latter might possess greater qualifications in scholastic and literary points of view. Some of the greatest blunders which have appeared in print have originated with men "full of learning," yet imperfectly informed in reference to some of the subjects which they have attempted to handle—with but superficial and presumptive understandings of the underlying facts and inner principles involved; to comprehend which correctly, requires practical contact and experience.

That it is edited by a "*practicing* architect" is an objection tinctured with jealousy, and should not and does not exist among intelligent and liberal-minded competitors;—particularly in view of the fact that special personal business interests have found no place in its columns. This feature has been carefully guarded against, and as far as we understand ourselves a broader and more liberal course pursued, giving greater business prominence to others than to ourselves. This has been done in a generous, honest spirit, not to effect a personal purpose, but from an editorial sense of right, duty, and propriety. And, in harmony with that more liberal disposition, we repeat that the columns of the CALIFORNIA ARCHITECT AND BUILDING REVIEW are free to every architect, mechanic, and artisan; not only those in San Francisco, but all upon the Pacific Coast, and to our professional brethren in every State in the Union, and those beyond the boundary of our great country.

As stated in earlier numbers of this journal, the object of its establishment was, and is, for purposes far beyond personal profits and gains—not that we propose to publish a journal for the sake of its pleasures, but that we may make it *valuable, instructive* and *useful* to those who patronize and read it, leaving the contingency of financial results to its merits and acceptability, realizing that if we succeed in producing a journal worthy of support, a generous and appreciative public will extend the helping hand, not only for the sake of encouragement, but to foster and sustain it as a necessary source of information and instruction. And further, the last mentioned objection will disappear just as soon as a sufficient number of paying subscribers are received, to provide for personal and publication expenses. Having spent forty-seven of our sixty years of life almost continuously in architectural, building, and mechanical pursuits, we shall willingly relinquish the honors and emoluments of the profession just as soon as this publication shall justify such a course. With this accomplished, our best and undivided energies and experiences will be earnestly devoted to the production of a monthly journal which shall be alike instructive and useful to architects, contractors, and mechanics generally, and also to every prop-

erty owner, farmer, merchant, and dealer upon the Pacific Coast. In addition to which we hope to make its matter, subjects and representatives such that its circulation will extend to every nook and corner of the United States, and wherever the English language is understood and read.

A New House Blown Down by the Winds.

During the "first storm" of 1880, occurring during the night of December 1st, a three-story frame building in course of erection at the northwesterly intersection of Pine and Laguna streets, was completely demolished, not a single timber of the entire construction remaining upright. The building had a frontage of 25 feet, which received the full force of the winds, by a depth of 75 feet. It was so far advanced in its construction as to be inclosed with rustic, roof on, main cornice completed, many of the outside frames set, and the floors partially laid. The lower part was intended for store or saloon purposes, with tenement above. Consequently, as is customary in the erection of this class of edifices, the store front was not inclosed, and the wind had full play in through the building, with no outlet except through the window and door openings in the rear and side walls.

Compared with the storms reported as occurring from time to time in other places, the blow of Dec. 1st was but a moderate breeze, which should not and would not have blown down any properly constructed building, except from *special causes*. From personal observation during progress of erection, and an inspection of the ruins, nothing has appeared to reflect neglect or lack of *usual care and judgment* on the part of the architects. That is to say, the building was of that class where limitedness and economy of cost was doubtless a controlling factor, and no extra effort was made to make it more than a *fair* serviceable building; and could it have been completed before the storm came, it would have answered all the purposes of its construction, and remained unharmed by the storm. There are thousands of buildings in this city constructed just as this one was, except that the diagonal or double boarding employed in the enclosure of the walls, was an additional feature of strength over hundreds of houses of otherwise similar class, which have withstood all the storms of many seasons.

In noticing the occurrence, the *Chronicle* stated in effect that the building, at the time of its fall, *was completed*. This was an error, and we are authorized in stating that the floors were in progress of being laid, and were not more than two-thirds completed, as by mutual understanding between the owner and contractor, the outside work of the building was being urged with all possible rapidity to secure inclosure before the rains set in. Consequently, the principal bracing partitions not being in place and secured, the building was enfeebled against the storm, not by error in manner of construction, but as the result of great anxiety in one direction, to the neglect of others more essential under the circumstances.

We have stated that *usual* care and judgment had been exercised by the architects, but we cannot refrain from reference to the manner of nailing the floors. They were simply "tongue" or "blind" nailed, according to *common practice*, with the nails, as usual in such cases, omitted at many of the nailings. In an article appearing in this journal some months ago, we reviewed the question of "*Laying and Nailing Floors*," disapproving entirely, except in special floors, the employment of tongue-nails, and showing the advantages of "face" or "through-nailing," as giving tenfold strength to buildings. We refer architects and our readers generally to the article alluded to, as worthy their perusal; and we say with all candor, that if the floors of the destroyed building had been carefully nailed with two tenpenny face-nails at each nailing, a *decided feature of strength* would have been added, with but trifling additional cost, and this, with such other *reasonable and proper precautions as should have been in practice*, the building would not have fallen. And it is safe to say that the destruction of the building could have been prevented at an expense of less than $20. A few additional braces, and a few pounds of nails judiciously driven, would have saved the building intact. This fact should impress upon contractors the folly of taking too many chances, and architects in *permitting* neglects of a dangerous character. For however innocent of blame the architects in this and all other similar cases may be, they cannot escape unfavorable if not damaging comment and criticism, as such occurrences supply material for idlers and story-framers, while evil-minded, jealous, and unscrupulous parties rejoice at the opportunities thus afforded for the exercise of the impure impulses of their natures, in the circulation of representations in harmony with innate or cultivated baseness, without the least regard to *exact facts*. Under the best of circumstances, architects suffer from the falsehoods of such persons, and happenings of the character under notice simply supply increased facilities for reproaches and misrepresentations.

In some things, excuses and arguments "are not admissible," and this rule is severely exercised as far as architects are concerned, their best and most diligent and earnest efforts often meeting with cool if not frozen appreciation, while condemnation and censure are visited upon the slightest mistakes or errors.

Architecture and Building on the Pacific Coast.

In both the architectural designings and mechanical construction of buildings in California, there exist marked local characteristics, differing materially from those of the older States and European countries. Certainly in no other city can there be found so great a diversity of styles and designs, varying from the "old" and "classic" orders, "modernized," down to strange conglomerations of individual conceptions of the beautiful, in which neither elegance of general effect nor consistency of lines or details exist. Whether the modernizing practices have added new beauties to the conceptions and creations of former ages, is a question to be decided by each respective connoisseur of art architectural.

There are many reasons for this diversity, prominent among which is that of the prevailing propensity of Californians to create and develop new things, to improve and attempt to excel—a disposition of mind, at least commendable, if not always successful. Again, the chaotic condition of things which existed in the earlier times in California, together with the isolation enforced by the thousands of miles which separates this coast from the Eastern States, dissipated all ambitions in reference to matters architectural, and the "*that will do for California*" was the controlling and accepted rule. This naturally created a debased general sentiment in reference to the architecture of this city, and established an order of things both in architectural and building pursuits wholly at variance with the more advanced and better conditions controlling like matters in other parts of the country. And this demoralized state of affairs, so thoroughly impregnated and perverted all right rules in building operations, that when the demand for more tasteful edifices and better workmanship began, neither the then practising architects nor builders were prepared to abandon long-prevailing customs; and it was only by slow degrees that old things passed away and the new gained ascendancy. To effect this, it became necessary for the few then practicing architects in San Francisco to renew their studies, and rise from the lesser professional levels at which they had so long remained, to reach the higher necessities, in the pursuit of which it was but natural that many moderate, and sometimes inelegant results should follow. To increase the difficulties then existing, there were none of the advantages enjoyed by architects in other places, of those contacts and facilities for observation which so greatly assist in the formation of conceptions and conclusions. While in other cities, architects were surrounded with ten thousand illustrations, effects, and objects from which the beautiful might be drawn, those of California were left with no other than the rude architectural forest of their own planting.

As time rolled on, others came, a very few of whom were men of conspicuous abilities, and many mere adventurers, seeking a new field for the *cultivation*, not the *display*, of their architectural qualifications. These comers hailed from all parts of the world, each and all bringing with them their individual ideas and notions, and each seeking to sustain the practices of their former places of experience. From these conditions, irregularities and strange things were inevitable, and diversities unavoidable.

Another factor in the case is, that of architects seeking to win patronage by the outdoing process; each seeking to accomplish some special thing in design, ornamentation, or general effect—designed, not with the simple and honest purpose to *improve* and *excel for the sake of better results*, but for the purpose and with the intent to *eclipse and gain advantages over others*. Ambitions and emulations, governed by right and honorable motives, are commendable, but when they simply portray selfish purposes and desires, they no longer constitute a virtue.

Again, owners have aided in this general distraction of our city's architecture, by seeking to excel and "throw in the shade" the equally ambitious efforts of others. It matters not how successful the first to build may have been, those who have successively followed, have aimed for something better within the same limits of cost—thus calling into exercise the diligence, ingenuity, and sometimes the recklessness of architects, to change and "*make different from anybody else*" each successive plan and design for a building. This system of perpetual architectural dissection—pulling to pieces, or adding to all former conceived ideas of buildings, resulted in many deformities — for, when men have exhausted their conceptive powers in working up and delineating beautiful things in so substantial a line of operations as that of designing buildings, it is not an easy matter to grasp others in rapid succession, and always produce improved results. Consequently the attempts in this direction have in many cases proved failures, and the illustrations of this proposition are numerous in this city.

Every architect in the city has had clients who have refused to approve and accept really beautiful things, for no other reason than that some other party had adopted the same. This feature of exclusiveness, a species of pure selfishness, has resulted in numerous architectural abnormities.

And not the least of these causes is, that of parties claiming to be architects, yet enjoying abilities scarcely sufficient to render them successful in planning and designing buildings of the most ordinary character. And when they attempt to deal with edifices which require actual and cultivated architectural knowledge and qualifications, they assume the part of the ass with the lion's skin.

Time, however, will regulate these things; and in years to come, these effervescent wishes of owners, and the faulty willingness of architects to encourage and work out any new suggestion presented, however ridiculous and inconsistent with well-understood proprieties and harmonies, will give place to greater uniformities and an appreciation of the more substantially beautiful in architecture.

Rainy Season—Leaky Roofs and Gutters.

The first hard rains of each season test the condition of all roofs and roof-gutters. That is to say, during months of "dry weather" in which not a drop of rain falls, no attention is paid to either roofs or gutters, and they remain uncared for until the "early showers visit the earth again" and expose the true condition of affairs, filling the hearts of roofers and jobbers with delight in anticipation of innumerable "repairing orders" and "fat jobs" in a small way; while multitudes of building-owners are rendered "nearly distracted" by the damage done to their property by leaks, which generally cannot be remedied until the storm abates or the rain ceases to fall. For if the roof is of tin, it is impossible to do any soldering while the rain continues, and if the material is asphaltum or composition of any sort, repairs are impossible until the rains are over; and in many cases, the only relief that can be applied is pans, buckets, kettles, tubs, etc., to catch the water which enters through the leaky places.

All this has its lesson. If owners could be induced to realize that there is constant wear and tear going on during the summer season, with its saline fogs and atmosphere, and that in numerous ways leaks producing injuries are possible, if not probable, they would see to their roofs and gutters in time to have them in proper condition for the pluvial visitations. Surprise is often expressed at the occurrence of leaks, while in fact they are but the natural result of various causes, and in the generality of cases might be prevented at small expense if attended to in time. But roofs put on of inferior "coke" tin, or even of the better qualities, and then left to run for years without painting, yield to the perpetual wear and tear of time, and fail to continue their intended protection. As animals, cloths, and all other things require care, renovation, and preservative appliances, so do tin roofs; and if not duly painted at proper intervals, they give out and become worthless. As before remarked in this journal, if tin roofs are painted as often as they should be, with proper material, they will last any number of years, provided the soldering and workmanship is good. Strong objections are often urged by owners against tin gutters to shingle roofs, and any number of stories are related of their insufficiency and worthlessness; while in fact, nine-tenths of the difficulties encountered with them, arise from the unmechanical and stupid manner in which they are put in. The chief fault lies in the absence of sufficient fall or pitch to carry off the water and wash the gutters. Thousands of gutters are inserted with not so much pitch to ten feet as there should be to one foot; consequently the dirt, dust, sand, etc., accumulates in them, to operate as receivers of the salt contained in the dews, and thus subjects the metal to the continuous effect of destructive agencies; while a gutter set at proper grade will wash clean with every rain, and if painted every two years with proper paint, they also will last as long as the shingles constituting the roof. In the Eastern States, copper and sheet-lead are used for roof-gutters; but on this coast, tin is the universal metal — and if inserted, cared for, and treated as we have suggested, will answer all purposes of twenty-five years' service, or longer.

Sheet zinc has been resorted to in some cases for gutters, and even for roof-covering, yet its utter unfitness for the purpose, places it among the unpractical things.

A great deal might be written upon the subject of roofs and roofing materials, but the references of this article relate more particularly to the matter of leaks than to the materials used for roofing purposes. If owners wish to avoid leaks in roofs and gutters and the damages resulting from them, the preventive remedies are in their own hands: first, in the employment of none but competent men to put on new roofs and insert new gutters, and in the repairs of old work; second, have your roofs and gutters examined and repaired, if they need it, before the inclement weather sets in; and, thirdly, take care of your roof, and spend money as often as necessary, and in time to keep them in good order. Many people preserve their teeth until old age, by timely attention, which by neglect, might have decayed years before. Roofs, like teeth and many other things, require constant attention.

Who is Responsible for the Damages?

This has been the prominent question since the fall of the building elsewhere noticed in these columns. Its correct answer hinges upon the exact condition of contract, bonds, etc. If it can be clearly established that the occurrence was what is known in law as one of the "providences of God," then each party will be compelled to bear such loss as he may have sustained; the owner losing the amount of money paid, and the contracting parties having no claim upon the owner for further payments on account of the original contract, unless they should proceed with the re-erection of the building.

The form of contract generally used in this city contains a clause—"*the owner shall not in any manner be responsible for any accident, loss, or damage that may occur.*" Such a provision of contract would specially exempt the owner from liability; but without it, under no circumstances would the owner be responsible, unless the accident resulted from his acts or orders. And it would greatly depend upon the circumstances of the case whether an owner would even then be liable without specific assumption of risks; as a party holding a contract is supposed to have full and absolute authority and control, and his right to *supreme dictation* in all matters cannot be questioned only so far as abridged by the terms and conditions of contract. Under the laws of certain European countries contractors are not only held responsible during erection, but for ten years or all time after completion, although they may have followed strictly the plans, details, and specifications of the architects.

It may therefore be fairly held that if a contractor *permits the invasion of his contract rights*, and obeys orders given by an owner, *outside of the privilege and provisions of contract*, he thereby accepts the risks involved and assumes whatever responsibilities may be imposed by his obedience of such orders. It is in the power of a contractor to refuse obedience to any order or direction given by owner or architect beyond those *covered by contract*, and if he neglects or fails to exercise such rights, he alone must bear the responsibilities of such failure or neglect, except so far as he may be protected by specific understandings. Had the building referred to been braced firmly and sufficiently to prevent its falling, and the owner had ordered the removal of these braces without assuming the risks created, he would not be responsible in law or logic for the destruction of the building, if the removal had been done *by the consent or knowledge of the contractor*. The owner enjoying *no rights* of such directions, could not enforce them, and the contractor was in duty bound to protect his own interests. If the contractor is a financially responsible party, he can be held for the re-erection and completion of the building, according to the plans, specifications and contract, unless escape is possible under the "providence of God" plea, or other legal relief. The obligations of the contract being *to erect, build and finish*, etc., the fact that he was so unfortunate as to permit its destruction by the storm, cannot be pleaded.

As to the bondsmen, their responsibilities rest upon the condition of the bond signed by them. If they have obligated themselves for the erection and completion of the building, with no extenuating or relieving conditions, they are responsible to the owner for its fulfillment, provided the bond is every way complete. The one idea, and that alone—the erection and completion of the building—is the sum, substance, and intent of both bond and contract, and until that is done, the owner's claims against all parties must remain unimpaired.

Some of our readers may consider this as a one-sided view of the case, but to us the conclusions appear logical and reasonable. We fail to find any fair pretext for involving the first party to a contract in the defaults, misfortunes, or losses of the party of the second part, except that of sympathy —a willingness to divide losses. Suppose the owner had gone to the building and ordered an increase of braces; it was within the province of the contractor not only to refuse to obey the order, but within his power to prevent any other party from doing so, if he were so disposed. Or if a sufficient number of braces were employed, the contractor possessed the right to remove one or all of them, without the consent of the owner, and against his will. Consequently, as the whole matter of safety and security rested in the contractor, and the owner was without any control, the latter should be held harmless, unless in some way specifically bound to bear a proportion of any loss that might occur through the acts or neglects of the contractor or otherwise.

The Phelan Building.

At last this much-talked-of improvement has assumed definite shape, and in time there will be added to the improvements on Market Street another elegant building. Frequently during the past few years, the report has been circulated that Mr. Phelan was about commencing building operations, but until recently nothing tangible has appeared, looking to such a result. Similar reports from time to time are invented and spread around concerning owners' intentions, for which they are in no manner responsible, and we presume this has been the case in this instance.

We expect to hear or see in print all sorts of statements, in reference to the building referred to, many of which will represent as contemplated, things impracticable, if not impossible of execution. One such appeared in a daily journal a short time since, stating that *all the rooms would be square or rectangular*. This is a silly perversion of possibilities. The lot has a frontage on Market Street of 303 feet, on O'Farrel Street 296 feet, on Dupont Street about 10 feet, by 169 feet at the westerly line; thus forming a triangle which cannot be converted into practical squares and rectangles, *as a whole*, except by mathematical calculation its area may be reduced to square feet and inches. Some of its apartments must therefore necessarily be other than squares. At the same time its principal rooms may be relieved of acute and obtuse angles, leaving the irregular portions for diversified uses and purposes.

From the fact that all corresponding corners along the northwesterly line of Market Street, from the city front out to Gough Street, numbering seventeen or more such triangular lots, many of which have been improved, and some of them with well arranged structures of considerable pretensions, the architect has been greatly aided in his conception of the plans.

We have not enjoyed the pleasure of a personal examination of the plans, but hope that the absence of neatness and beauty so transparent and often referred to in the Palace Hotel, and the monstrosities presented in the erection of the Grand Hotel, will be avoided. We can conceive no good reason why the introduction of the hideous, unnatural, and monstrous ornamentations of ancient architecture should be revived from the dark ages, and periods when the science of architecture accepted the most frightful representations and combinations of men, beasts, fruits, flowers, gods and devils, as pleasing features. In these more modern times, such things may be contemplated in books with interest, as illustrating the fancies and conceptions of the past, but to men of refined and appreciative minds, they are repulsive and by no means pleasing. With these the Grand Hotel is overburdened, and we hope that a refinement in architectural taste in San Francisco will exclude them ever hereafter.

Mr. Phelan's building will doubtless be substantially constructed, as the architect, so far as we are informed, has always employed materials in sufficient quantities to insure strength and solidity. And as the only limit placed upon the cost of the improvement is such as may be determined by the respective bids, there will be no excuse for weakness or defect in any character.

In addition to large and ample stairways, halls, etc., there are to be on the ground floor thirteen stores, two hundred offices and rooms in the several stories above, ample elevators, and all modern improvements are to be introduced; and we have no doubt but that when completed, Mr. Phelan will end his journey of life, owner of a "noble and imposing structure."

We hope that the contemplated building will be grand and beautiful, as every additional edifice of such character adds to the architectural grandeur of the city, and is a matter of general interest to every citizen of the metropolis of the Pacific.

Sanitary Regulations.

The New York State Board of Health has adopted a body of sanitary regulations, which, if thoroughly enforced, will go far to reduce the death-rate and promote the general health of the great community under its care. There is likely, we should judge, to be some resistance to a few of the ordinances, even the most necessary, but we hope to see it promptly overcome. Nothing but actual force will compel a large part of the rural population to abandon the filthy habits in which they have been brought up, and some such coercion as is now applied with most salutary effect to the lower classes in the cities will be useful in more sparsely settled regions. One of the new rules is that no privy vault shall be allowed within fifty feet of a well or spring. If this reform is carried out, an incredible number of dwellings will be thrown into commotion, especially in the smaller cities, where land is valuable, and house-lots small, while no slight degree of inconvenience will be caused in many cases. Another salutary regulation which is likely to prove unpopular, is one prohibiting public or church funerals for persons dying of scarlet fever, Asiatic cholera, small-pox, diphtheria or yellow fever. This rule is now enforced in some other States, with good results. It is time that the community should be awakened to the fact that the reckless conduct in cases of contagious disease by which innocent persons are exposed to infection through the carelessness or indifference of the patient or his friends, is little short of crime, and a few examples of conviction and punishment for this offense would have a most wholesome effect.—*The American Architect and Building News.*

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**

Our Illustrations.

During the present year, we have "done the best we could" under the circumstances, in the production of illustrations. But in the early future, we hope to effect material improvements in this department. There are difficulties in this connection in this city, not experienced in the Eastern States, where scores of methods and processes are in competition, and facilities afforded, far in advance of those possible on this coast. But with the rapidly increasing prosperity which is attending the publication of this journal, it remains only a matter of time, when in illustrations, and all other departments, it will compare with the best architectural and mechanical journals published.

The "you have done well," "we need just such a journal in S. F." has been repeated by thousands of tongues. The admission of these *facts* should be followed by the immediate addition of thousands more, prompt, paying, yearly subscribers. These we invite, and in return, we pledge the production of a journal that will more fully meet every want in the Architectural, Mechanical, Sanitary, Scientific, and other kindred departments, as far as possible, in a single journal of its size and character.

Illustrations "A.," represent the plan and design of a neat cottage, more particularly suitable for a country residence. The plans explain themselves, without detail references. Its room conveniences may be enlarged by the addition of a second story over the kitchen section, to which access may be made by a slight change in the stairs and bath-room, and if desired, an additional room for servants' use may be added at ground floor. We name no special amount as the cost of building, as this depends altogether upon the character of construction and workmanship employed. As frequently stated in this journal, in connection with plans, the cost of buildings of any given size, number of rooms, etc., may be made to vary from 5 to 500 per cent.; consequently, until accurate specifications are prepared, no intelligent value can be placed upon any building, except by the common rule of "guessing," and that is very uncertain.

The design for side-board is an original conception, intended for a niche or recess. It might be made of lesser qualities of wood, but is contemplated in toa, ebony, or black walnut, with the ornamental portions in other lighter shades of fine woods.

The mantel, or "chimney-piece," is by Cooper & Holt, London. The tendency of public taste in San Francisco for this style of furniture, is so largely on the increase, that we present the cut noticed, for the benefit of our readers, and to illustrate designs of foreign origin.

We insert the monstrosity, Chinese "God of Contentment," as an object of curiosity, doubly curious as being a thing before which human beings bow and worship as one of the deities.

"The First Step," is so full of innocence and interest, that we, who have passed from the "first step" to maturer years, may find much to review and contemplate. The lamentation, "O that I could live my life over again," has come from millions of tongues, and the inaudible voice of the beautiful little figure presented, seems to counsel a careful and right starting out in life, that its pathway may not be strewn with regrets.

THOUGHT RULES THE WORLD.—It makes no noise, but lives on and reigns when all the bustling and shouting that seemed to stifle it are hushed, and whilst the great works, which it guided the hand of man to do, have either perished or remained to tell of a pomp and vain glory gone forever. Thought is with us, in the words of wisdom, that "shall not pass away," and to which we do well to give heed.

We intend next year to give a full description of the leading industries of the Pacific Coast, beginning with the *Pacific Saw Manufacturing Company*. We would call especial attention of our eastern friends to these articles, as they will be particularly interesting. Send in your subscriptions for 1881. Price $2 per year.

A communication in reference to "Hinkle's Elevators" was received too late for insertion in this issue. It will appear in the January number.

The Peltonian Era in Architecture.

The singular fact, that every once in awhile some peculiar personage appears in some special form, is fully illustrated in the many idiosyncratic characters which occasionally become conspicuous by their peculiar, extraordinary, irregular and visionary acts or sayings. Sometimes such men, in a greater or less degree, attract attention, and sometimes, as in the cases of G. Francis Train, Denis Kearny, and other similar characters, gain almost world-wide notoriety; while others equally self-conceited, floundering in more restricted and limited spheres, fail to do more than secure local conspicuousness. The author of the Peltonian (!) inconsistencies in connection with architecture and home construction, is evidently one of those peculiar characters, as exemplified in the several presentations of *copyrighted plans for cheap dwellings*, occasionally appearing in the *Evening Bulletin*, a journal which professes to be always reliable, and never to mislead its readers, but which, in the matter under review, is guilty of gross misrepresentations, and the publication of statements which are delusive, inaccurate, and untrue. We speak understandingly when we state that the views expressed by us in this matter are approved and indorsed by every intelligent architect and builder in the city of San Francisco. The copyrighting "enterprise" (!) of our contemporary has been canvassed, discussed, and most EMPHATICALLY CONDEMNED by architects and builders generally, as being faulty in conception of plans—defective, insufficient, and *unintended* in the specifications, and grossly incorrect in estimated costs. Workmanship and material have been specified for these "cheap dwellings" far more expensive than is adopted in a majority of buildings costing $500 to $1000, where expensiveness is a secondary consideration. And as we have stated in former reviews in this connection, the party specifying either failed to understand the value and magnitude of the requirements expressed, or with unpardonable indiscretion and recklessness incorporated unusual, unnecessary, and sometimes impossible and wholly impracticable conditions.

In other issues of this journal, numbers 1, 2, 3, and 4 of "series" were duly noticed, and their errors and inconsistencies exposed; and the stated amounts of cost denounced as unreasonable and insufficient in every instance; and we challenge the proof that there has ever been a single building erected *according to the plans and specifications* referred to, and completed within or *near* the stipulated sum of estimates given as the true value in either case; the statement of the *Bulletin* to the contrary notwithstanding, "*that several houses in various parts of the State have been built on the plans already published, and at figures* CORRESPONDING (!) *with the published estimates.*" The additional, accompanying, qualifying statement, however, provides the large loop-hole through which an ox-team might drive—"making due allowance for transportation and extra cost of labor," to which many other due allowances might be added.

We made no reference to number 5 of series, as unfavorable criticisms are by no means pleasing to us, and we should gladly have been spared the present necessity of repetition of such a course. But the appearance of number 6 imposes the necessity of these comments, or the presumption that the present last of series are free from objectionable reference, which presumption is by no means sustained by the facts of the case.

The editorial comments accompanying number 6 state that "*the same care has been taken in the preparation of these plans and the estimates of cost, as characterized previous plans published.*" This is not questioned, as the same character of errors in plans, specifications, and estimate of cost are so conspicuous that none can doubt their origin. We agree with our contemporary in reference to the incredibility of "*most people that such an ornamental and commodious home could be built for so small an amount of money,*" but not that any good care or judgment, or any moderate degree of intelligence, has been exercised in forming the estimates. And we here and now state, and are prepared to meet the issue, that no such building as that, fairly contemplated by number 6 of series, can be built for any such sum as that stated. The title reads, "cheap dwelling," but the plans and specifications—such as they are—contemplate much more than usual and customary expenses in the class of buildings represented by number 6; and if carried into execution under [illegible] fair and impartial superintendence of any qualified architect, who would exact *no more*, nor permit *any less* than the papers require and comprehend, *fifty per cent. added to the estimated amount* would no more than pay the bills of costs.

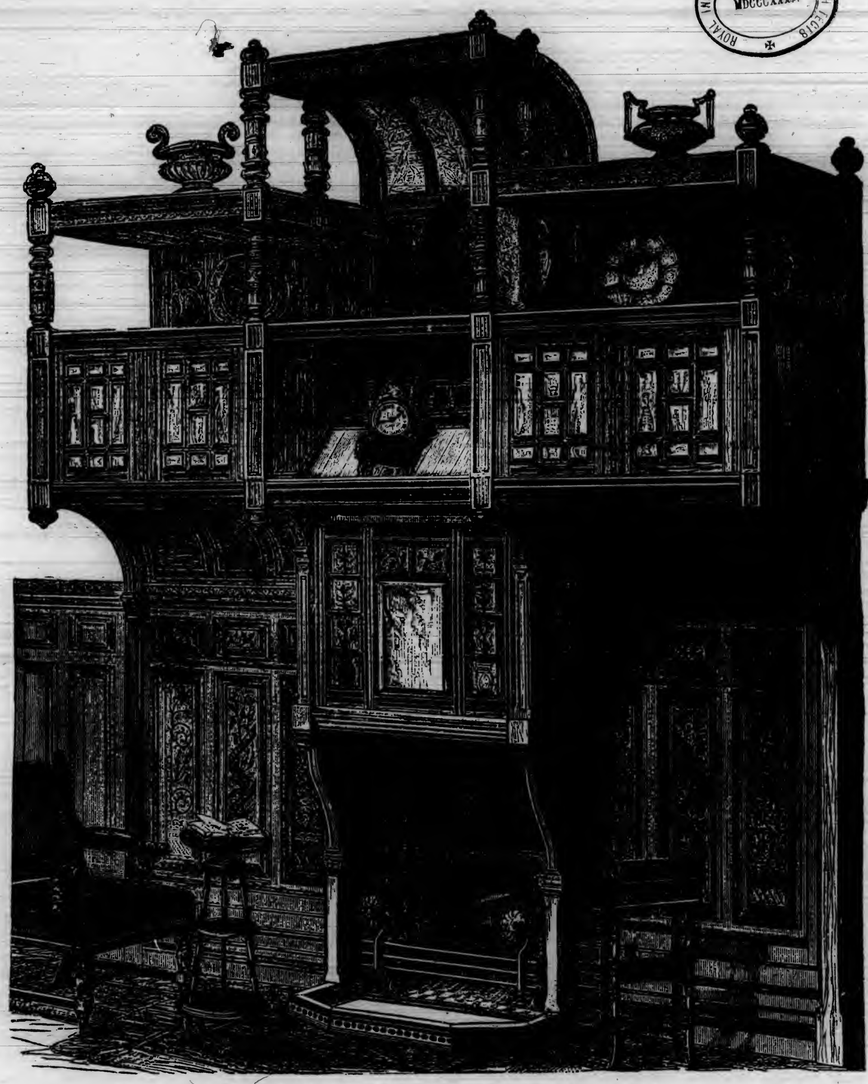
Errata.—In the sentence above—"Workmanship and material have been specified," &c., the prices should read $5,000 and $10,000 instead of $500 and $1,000.

The editorial recommendation of the plans, simply illustrates incompetency of judgment, in at least some particulars. The "Entrance Hall" is suggested as combining "the chief features of an ordinary hall, and the usefulness and convenience of a sitting-room." This is true, and the same application might be made of many other old-time and obsolete things, which have passed from use because of their impracticability and unsuitableness for the uses and purposes of the present generation. This *very old* arrangement answered the purposes of our progenitors, with occasional adoption in later years, and perhaps might be approved at the present time by people of peculiar and eccentric notions, but it enjoys no general popularity, and has no standing in the list of modern improvements in architecture. The opening of the outside front-door directly into a room occupied for family purposes is most objectionable, and would be approved of by but few persons; and the carrying of all chamber slops, and the passage to and from the chamber story through a sitting-room, is a wretched conception, by no means complimentary to those proposing such an arrangement. The fire-place paraded in the "Entrance Hall," is a decided excess in a "cheap dwelling," and is valueless for any practical purpose. For if the apartment named were tortured into a sitting-room, it would require more than one fire to render it passably comfortable, with its unin closed stair-way acting as a funnel to convey the heat of the fire to the second story, and in return, the descent of the cold air from above, to keep such "sitting-room" cold during periods when fires are necessary. But the departures from fair designing, consistent specifications, and proper estimate of costs are so numerous, that we forbear further comment, except to say, that we are impelled to the plainness of language used, by a sense of justice to the architectural profession, and the building interests of California. For if the profession in San Francisco is to be judged by the architectural efforts presented in connection with the "Bulletin's" series of plans, etc., a very medium standard would be reached; and if builders were compelled to erect buildings according to the plans, specifications, and estimates accompanying, their lot would be poverty and beggary during life, and the pick and shovel at $1.00 per day would be infinitely preferable. Although pumice-stone and other never-adopted things in this class of buildings are called for by the specifications, we have not the slightest idea that their use is seriously intended; and we would not venture the statement, that the party specifying has the slightest correct idea of the intelligent application and use of the excessive and unusual things specified. But as many parts of the work are specified to be "fixed," there may be an undeveloped process by which the extraordinary features of the specifications may also be "fixed."

A Drunkard's Brain.

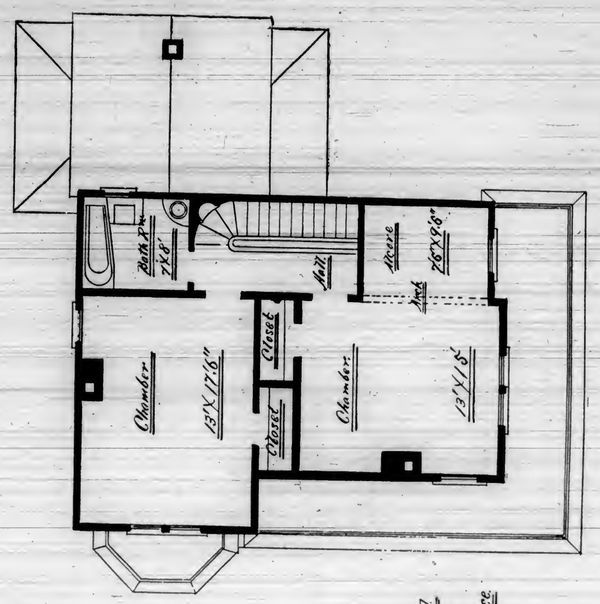
Hyrti, by far the greatest anatomist of the age, used to say that he could distinguish in the darkest room, by one stroke of the scalpel, the brain of the inebriate from that of a person who lived soberly. Now and then he could congratulate his class upon the possession of a drunkard's brain, admirably fitted, by its hardness and more complete preservation, for the purpose of demonstration. When the anatomist wishes to preserve the human brain for any length of time, he effects his object by keeping that organ in a vessel of alcohol. From a soft, pulpy substance, it then becomes hard; but the inebriate, anticipating the anatomist, begins the indurating process before death; begins it while the brain remains the consecrated temple of the soul, while its delicate and gossamer-like tissues throb with the pulse of heaven-born life. Strange infatuation, thus to desecrate the godlike! Terrible enchantment, that dries up all the fountains of generous feelings, petrifies all the tender humanities and sweet charities of life, leaving only a brain of lead and a heart of stone! —*Scientific American.*

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**



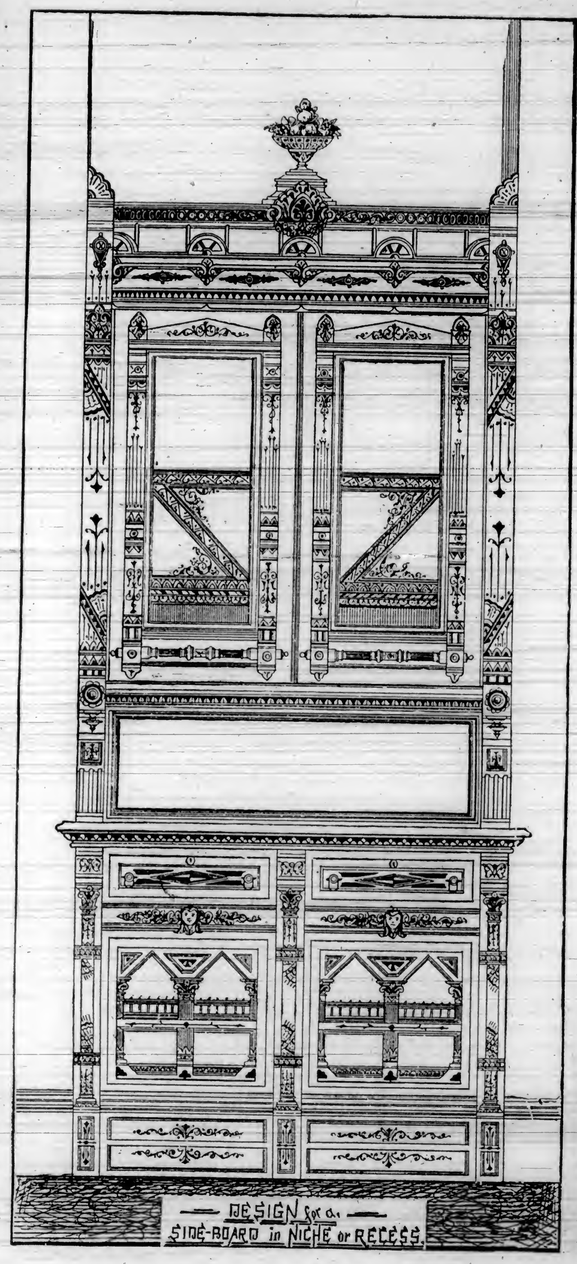
Chimney Piece and Wainscoting: Cooper & Holt, London.

ELEVATION FOR COUNTRY RESIDENCE A.



FIRST and SECOND FLOOR PLANS for Country Residence A.

ROYAL INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIV



God of Contentment.—Chinese.

The First Step.

PROSPECTUS FOR 1881.

The California Architect and Building Review is the only journal published west of the Rocky Mountains devoted *specially* to the *architectural* and *building* interests, and generally to matters sanitary, scientific, mechanical, etc.

Its second volume will commence with its January number, 1881, and including the *Quarterly* for 1879, its third volume.

Were it reasonably possible to place the subscription price at a less sum than Two Dollars per annum, it would have been done. But the excessive cost of publishing a journal in San Francisco over that experienced in Eastern cities renders it impossible to adopt a lower standard of subscription rates. Numerous disadvantages and outlays have to be encountered in this field of operations which do not present themselves in other places, and it requires infinitely greater labor and expenditure to accomplish like results with those produced where all the surroundings and facilities are favorable and easy.

The hearty approval and indorsements received, both at home and from abroad, give assurance that past efforts have been acceptable. But whatever of excellence may have been exhibited during the year journalistically closed with this issue, the pledge is here made that the most earnest and persevering efforts will be put forth to improve it in every department, so that in the near future, if it does not at present, this journal will compare in interest with the best of its kind published in any part of the United States, with *special superiority* as far as *the Pacific coast is concerned.*

The western coast of this great continent has never heretofore been fairly represented in many of its interests. Its wealth of gold and silver mines, its teeming fields of golden grain, and its fruit and wines, enjoy world-wide repute, but there are thousands more of comparatively wonderful things which have not received deserved attention. These in order will furnish material for future attention in these columns.

The architecture of California, methods of construction, and all other matters of interest in connection with house-building, will receive due attention and be fully illustrated.

At present and heretofore difficulties have attended the production of illustrations, but as the liberal subscription support hoped for comes to hand, these will be wholly overcome, and in the near future arrangements will be perfected which will insure the best within the range of possibilities on this coast; and, if need be, to reach satisfactory excellence, measures will be adopted which will of certainty insure coequal results with any journal published.

Although hundreds of notices complimentary to its editorial management have been received from all parts of the country, the engagement of additional writers, of acknowledged ability, will be a guarantee that its columns will contain a large amount of instructive and interesting matter.

An unfairness has heretofore been practiced by many of the "leading journals" in the Eastern cities, which it is hoped will not be repeated—that of copying original matter from the columns of this journal without credit. The fact that this has repeatedly been done proves the value of matter appearing in its columns.

The thirty years' residence of the editor nearly constantly in California, with some experience in Oregon, and two years in British Columbia, will be a sufficient guarantee that all representations in reference to matters upon this coast will be fairly and intelligently represented.

Communications from all parts of the country are greatly desired, and will be highly appreciated. The fullest information possible will be cheerfully given to all parties seeking the same through this office.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

Business Manager of the Architect.—An examination of one of the engravings in a new work on architecture gave rise to the following questions, which we hope will be answered in your next: Is it strictly necessary to have *pointed arches* to present a perfectly pure specimen of Gothic Architecture? When and where was the *arch* first used in a building or other work?

Geo. H. Fleming, San Francisco.

Ans.—1st. It is possible to erect a building in any style of Gothic architecture in perfect purity without a single pointed arch in any of its parts. By so doing, the absence of the usual *forms* in the leading features would be a singularity, but the *principle* would not be affected. 2nd. The origin of the *arch* is involved in obscurity. Some ascribe it to the Greeks, others to the Romans; while still others with that noted investigator, Sir G. Wilkinson, at the head, assert that the ancient Egyptians were thoroughly acquainted with it. It is certain, however, that the Romans were the first to bring it into general use.

We will be able to furnish The California Architect for 1880, neatly bound, for the sum of $2.50. We will also have The Quarterly for 1879 bound with this year's, which we will give for the low sum of $3.50. Send in your orders early, as we will only have a limited number of the latter. The latter will contain information that could not be furnished by any other publicattons for double the money. We will pay the postage to any address in the United States.

Business Manager of Architect.—Why was it necessary to have a *dome within a dome* in the St. Paul's, London? An answer will greatly oblige G. H. Fleming.

Ans.—In looking at the picture of St. Paul's, you are taken with the idea that there is something wrong, but exactly *what* you cannot tell. One of the greatest defects in the building referred to is its *fictitious dome*. The dome that you see in looking at a picture of St. Paul's is a mere construction for effect, and is *not the dome of the church*. St. Peter's far surpasses St. Paul's in this respect, as in the former the *dome is the actual covering of the building*.

Business Manager of Architect.—To settle a dispute amongst some ranch-men, will you please answer the following: Does it take more pickets to build a fence *over* a mountain than it does if it was built in a *straight line* in a tunnel *through* the same mountain? San Joaquin Valley.

Ans.—It will take more rails, but precisely the same number of pickets.

Business Manager of Architect.—To settle a fire-side controversy, will you please inform us through your journal which is the largest rectangle that can be inscribed in a circle, and how do you prove it? R. W., Niles.

Ans.—The largest rectangle which can be inscribed in the circle is a square. It would take too many cuts to thoroughly answer this question, and so we refer you to any standard works on geometry.

Business Manager of Architect.—Will the impregnation of wood by saline solutions render it completely incombustible?

S. H. F., San Mateo.

Ans.—When the flames first touch wood so prepared, they do not have much effect, but as the heat augments, the water of the salts evaporates, the salts themselves decrepitate, and the wood is left an easy prey to the fire.

Business Manager of Architect.—What are the five principal orders of architecture?

H., Pescadero.

Ans.—The Tuscan, Doric, Ionic, Corinthian, and Composite. Those in most frequent use are the Doric, Ionic, and Corinthian, and are called by way of distinction, the Classic Orders.

Business Manager of Architect.—One of the students of the University told me, that the so-called Mansard roofs were misnamed, as they were in use long before that architect was born. Will you please tell me if he is correct? Thanks for answer in your last. Enca, Berkeley.

Ans.—To Francis Mansard, who died in 1666, must be given the credit of *introducing* the roof which bears his name. According to one author, Michael Angelo employed the *principle* of the Mansard roof in the construction of the dome of St. Peter's; another author asserts that it existed in the Louvre in 1570, and that the houses in Lower Brittany were covered with these roofs in the end of the fifteenth century; but it is certain that this kind of roof did not come into fashion till the time of Mansard.

Business Manager of Architect.—What is an equilateral pitch of roof? S. R., Olema.

Ans.—When the length of the rafter is equal to the span.

☞ **Bound Copies of this journal for 1880 can be had on application at this office Price, $2.50 per volume, post-paid to any address. We also have a few volumes with the Quarterly Review of 1879 added. Price, $3.00.**

Clippings from Magee's Real Estate Circular

"THE MONTH OF NOVEMBER was a decidedly dull one in real estate, and we do not wonder that it was. Taxes were due and payable, and buyers were therefore more forcibly reminded than at any other time what taxes amount to, and the rate of this year ($2.21 on the $100), is so outrageously high that it is but natural for buyers to hold off until owners have removed the load for one year ahead, by paying it. The rule now is, that the seller pays only while he owned—that is, from 1st of July last until date of sale; but after December 27th, taxes become delinquent, and it becomes the seller's duty thereafter to pay them all. If times were lively and prices going quickly upward, taxes would be but a bagatelle; but in times like these, and with so much real estate dull of sale, buyers weigh every point and reach out after every advantage. The demand for good business property is still far in excess of the supply; any central, paying property can be at once disposed of at full price. The number of sales made in November was 172; value $945,699, against 170 in October, of the value of $1,163,143."

"PRIVATE LENDERS are competing very strongly with the savings-banks for good mortgages. There is now, we judge, over $2,000,000 in private hands which the owners are endeavoring to loan on city real estate. They are willing to loan at even less than the low rate of interest charged by the savings-banks. Some of these lenders have accepted 7 per cent., they paying the mortgage tax. The savings-banks report in some cases an increased demand for money; the Hibernia still loans at 8 per cent. and pays the mortgage tax; the German Bank and Savings Union loan at 8 to 9. 139 mortgages were recorded last month; value, $702,991; there were 134 releases; value, $613,716."

"TAXES HERE AND IN EUROPE.—In many European countries there is no tax on mortgages, but in Great Britain there is an income tax, of which the rate varies from one penny to four-pence per pound sterling on the annual amount of interest derived from money lent on mortgage. This is a small percentage on the *revenue* only derived from the investment. In this city we are taxed 2½ per cent. on the *capital* sum lent. Such taxation would in Europe be simply confiscation, for the rate of interest there is much lower. In England the rate for loans on mortgage on first-class city property is about five per cent. A gentleman now on a visit to this city, of much experience, tells us that he lately loaned money on mortgage on first-class property in the business center of London, at the rate of six per cent., and that this is an unusual rate for such loans. When money is plentiful, such a loan can be got for 3½ per cent., and the rate hardly ever exceeds 4 per cent."

"CHICAGO NOW AND TWO YEARS AGO.—About two years ago houses in Chicago that used to rent for $75 a month were bringing but $25, and with many of them vacant. The Sheriff was then kept busy with foreclosure sales. Now, a store in the business center cannot be had, and it is claimed by the Chicago *Tribune* that 30,000 new houses have been built there since last April. The *Tribune* further says: 'There is hardly a vacant store in the city. Dwellings are also all taken, and every house or store that is built is snapped up and occupied before fairly completed. Yet there is tremendous activity in building. Nothing like the prosperity now prevailing was ever known before.' These ups-and-downs are characteristic of American cities. There will now be a rush-up of everything for four or five years in Chicago and other large American cities. There will be over-building, mortgaging and inflation; then will come four or five years in which houses can hardly be rented at all, and property can hardly be given away. The man of sense sells in the rush, and buys in again when the tumble and depression come; the rule of the crowd is the opposite—they buy at or nearly double price, frequently going in debt to do so. The Sheriff and foreclosure are their reward when the fall comes. Wisdom is indeed justified of her children, but her family is so small that it might easily be accommodated in a very contracted mansion."

"PROSPECTS OF PACIFIC COAST GROWTH.—The news, first published in *The Circular* of last month, that the Southern Pacific Railroad Company will, when its line is completed to Galveston or New Orleans, carry immigrants from Germany and England to California for $30, is most important, coming, as it does, too, at a time when a revision of the treaty with China, and a stoppage of the Chinese plague, seems about to be consummated. The steamships going to Europe will be loaded with California wheat, wool, and wine; they will always have full cargoes going that way, but, coming back, they will be comparatively empty; hence if the line gets but $10 or $15 each from steerage passengers, it will be better off than if it ran the vessels empty. Coal for the same reason is carried from Europe to California on sailing ships, to fill up with as ballast, at $2½ to $5 a ton. Sailing vessels would long ago have carried immigrants here but for the length of the voyage around the Horn and the cost of feeding them. The Southern Pacific line will be completed to Galveston or New Orleans within two years. When it is, we will see a great influx of immigrants here. In our judgment, the ten years between 1883 and 1893 will be the greatest decade in growth ever witnessed in California."

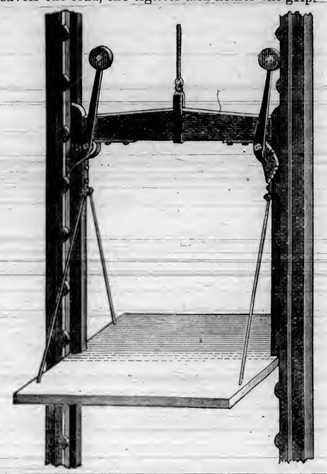
"ANOTHER TURN OF THE SCREW.—The Spring Valley Company is at present busily engaged in putting a water meter in every dwelling and place of business where its water is used. The object is, we may take for granted, as a matter of course, to give the company additional leverage, to enable it to put the screws on still more tightly."

"THE CORNER IN COAL.—We are assured by a gentleman well posted in the matter, that coal is likely to come down in price within a month. Of course when coal went up here, ship-owners in Europe, who had ships heading this way, were notified, and it is now about time for some of their coal cargoes to arrive. As a general rule ships from Australia and Europe bring coal here more for ballast than for any profit in the freight. The freight paid to them for carrying coal is generally very small. But, for three months past, they would all be well paid for carrying coal, so that more of them than usual are now on the way here with coal cargoes. There are three causes for the advance in coal: first and chiefly, the advance in grain freights, which pay vessels far better than going up to Puget Sound for coal. Ship-owners do not like that coast, and are only too glad when freights to Europe obviate the necessity of their taking coast-coal freights. Second, the Southern Pacific Railroad Company is now burning coal on all its locomotives, and is therefore one of the largest, and also a comparatively new coal buyer in this market. The agreement among the coal dealers is the third cause of the present high prices. This agreement is indeed believed by the general public to be the *sole* cause of the advance, but it is not. Meanwhile, the chance of a fall in coal soon is very good. Consumers should buy as little coal as possible for a month or so. Let them use wood, where they can, for the less coal is used the sooner the price will come down. Wood between Emigrant Gap and Truckee is worth, we believe, but $3 to $5 a cord. The freight per car load from Truckee is $39. A car will carry about eight cords. Large consumers at least should not submit to extortionate prices for coal."

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

B. E. Henriksen's Safety Clutch.

The annexed cut is an illustration of *B. E. Henriksen's Patent Automatic Safety Clutch for Elevators*:



This safety clutch consists of two upright trip levers each provided with a solid rubber roller at the top; and mounted at the bottom on a horizontal shaft secured to the frame of the cage and supporting two toothed cams or dogs. A corrugated strip of wood or cleat is applied to one side of each of the guide posts of the elevator, in such a manner that the rollers on the trip levers will be caused to rotate along their corrugated face. At the ordinary rate of speed these rollers pass over the projections and fall back in their places by reason of their weight and position, but any excess of speed caused by the fall of the elevator brings the rollers in violent contact with these projections, which throwing the levers outward causes the cams or dogs to engage into the guide posts, thus forming a wedge or brake which instantly stops the cage. The action of this safety clutch is such that the more rapid the fall, the quicker the action; the heavier the load, the tighter and firmer the grip.

Mr. Henriksen, at the last Mechanics' Institute Fair, had a full-size elevator in operation, in order to demonstrate the particular working of his invention. This elevator contained a load of about 600 or 700 pounds, the average load of ordinary elevators. The cage was run up and down at the usual rate of speed; then a brake was opened and the cage permitted to fall violently as if the cable or some part of the machinery had broken. This caused the clutches to perform their duty by instantly stopping the cage. These tests were made from four to twelve times every night for four weeks, but the safety clutch never failed to act.

This form of clutch is to be preferred to those whose action depends upon springs, or upon the breaking of the main cable. All the elevator accidents which have occurred up to this present time have been caused by some defect in the machinery; we have yet to hear of any caused by broken cable. The following are among the advantages possessed by this safety clutch over all others. It has no springs, tumblers, nor triggers, liable to become gummed, stiff, or otherwise unreliable.

It will work as well on an empty cage as upon one loaded to its utmost capacity. The elevator of the Johnson Building, No. 120 Sutter street, which was prevented from falling by one of these clutches on August 17th, 1880, contained six persons, weighing 900 or 1100 pounds, (nobody hurt). The elevator of the California Furniture Factory, 224 Bush street, which was stopped from falling on September 28th, 1880, contained a load of furniture, a large plate mirror and the elevator boy, about 400 pounds in all, (no damage).

This safety clutch in in use at the
Johnson Building.....120 Sutter street,
Thurlow Block.....126 Kearny street,
San Francisco Stock Exchange.....Pine street,
Haker & Hinz.....545 Market street,
W. & Y. Sloan.....522 Market street,
J. Cerf & Co.....517 Market street,
W. Cohn & Co.....Battery and Bush,
California Furniture Co.....224 Bush street,
New City Hall.....
Halleck Block.....Halleck and Sansome,
Levi, Diamant & Co.....107 Battery street,
Franco American Perfumery Co..109 Battery street,
P. Berwin & Co.....111 Battery street,
Pioneer Woolen Mills.....115 Battery street.

☞ *Mr. Henriksen received the* SILVER MEDAL *awarded by the Mechanics Institute for the best Safety Clutch exhibited during the last Fair.* *3m.

SAN FRANCISCO, June 1st, 1880.

We, the undersigned Architects, do hereby certify that we have carefully and critically examined B. E. HENRIKSEN'S PATENT AUTOMATIC SAFETY CLUTCH, and by reason of its simplicity, cheapness, durability, and positive and prompt action, consider it to be the best and most reliable of the kind.

We therefore cheerfully indorse and recommend this Safety Clutch to all persons requiring the same.
DAVID FARQUHARSON, 502 Van Ness Av.
P. HUERNE, Thurlow Block.
KENTZER & RAUN, 601 California St.
WOLFE & SON, 240 Montgomery St.
THEO. A. EISEN, 330 Pine St.
WILLIAM CURLETT, 330 Pine St.
WILLIAM MOOSER, 302 Montgomery St.
J. MARQUIS, 39 Sutter St.
GEO. BORDWELL, 507 California St.
WRIGHT & SANDERS, 418 California St.
P. J. O'CONNOR, 413 Bush St.
T. J. WELSH, 302 Montgomery St.
WM. PATTON, 411 California St.
AUGUSTUS LAVER, Stock Exchange.
HATHERTON & PELTON, 330 Pine St.
*2m.

To the Board of Health, City of Oakland.

GENTLEMEN—Your Committee to whom was referred the investigation of sewer-gas traps, beg leave to submit the following report:

The inception of many of our most dangerous diseases is due to the escape of sewer-gas throughout dwellings, arising principally from stationary wash-stands, sinks, and other modern introductions connected with sewers; and probably no department of inventive genius has been put to a greater test than to devise something to thoroughly overcome the great evil. After a careful investigation of numerous appliances, we UNHESITATINGLY RECOMMEND the GARLAND IMPROVED SEWER-GAS TRAP, for wash-stands, sinks, bath-tubs, etc., as being at once *economical, effective, simple in principle, and not liable to get out of order.*

WM. H. BROWN, M. D.,
Chairman of Committee on Sewerage and Garbage.

Passed by unanimous vote of the Board, October 13th, 1880. *

Market Report.

GLASS.—The market is very firm; no difference in price to quote since our last. A ship, with a large consignment on board to one of our dealers, foundered when within 200 miles of our port. Nearly all the glass, some 2000 cases, was sold prior to arrival, and it was most certainly unfortunate to lose such a cargo almost in sight of the destined harbor.

PAINTS.—There has been a fair demand during the past month; now that winter has fairly set in, we may expect a large decrease in the activity heretofore prevalent. Prices remain the same as our last.

LUMBER.—The year will about be closed when this greets the eyes of our numerous readers, and there is a very different tale to tell from this and the same date last year. There is a very light stock on hand, with not very much prospect of its being increased to any great extent in the near future. Some dealers have already found it difficult to secure ships to load lumber, as the almighty dollar rules the owners of the latter, and whenever a cargo of coal can be secured at better rates than lumber, they prefer the coal. We do not think, however, that any advance will take place, but, from present prospects, *stiff prices* will be the rule. Inch and a half laths are very scarce, and have advanced twenty-five cents a thousand. One and a quarter inch are plenty, and remain at the same as our last quotations. Doors and blinds remain the same as our last report.

HARDWARE.—Wet weather naturally affects the use of hardware, and the market is very quiet. A reduction of twenty-five cents a keg in nails has been made, and the market is weak even at that. 4-penny nails are very scarce, and Sacramento has been drawn upon to supply the deficiency in this market.

OREGON PINE.

Common Rough, up to 40 feet, per M feet		$20 00
"	40 to 50 " "	21 00
Common Rough, 50 to 60 feet, per M feet		22 00
"	60 to 70 " "	23 00
"	60 to 80 " "	24 00
Refuse Rough		16 00
Common Rough, sized with planer $2 additional on above rates, per M feet.		
No. 1 Flooring, 6 inches and over, and Stepping	per M feet	27 50
No. 1 Flooring, 4 inches and under, and 1¼ x6 Flooring	per M feet	30 00
Rough Clear for flooring, $1 less than above rates, per M feet.		
Second quality Flooring and Stepping, per M feet		22 50
Ship Plank, rough	per M feet	25 00
" planed 1 side	"	28 00
" planed 2 sides	"	30 00
Deck Plank, rough	"	28 00
" dressed	"	32 50
Laths, 1½ inch	per M	3 50
" 1¼ "	"	3 75

REDWOOD.

Rough Merchantable	per M feet	$20 00
" Refuse	"	16 00
Surface, No. 1	"	30 00
Surface, 1 x 8	"	30 00
" 1 x 6	"	28 00
" No. 2	"	22 50
Rustic, No. 1 1 x 8	"	28 00
Rustic, No. 2	per M feet,	$25 00
" 1 x 10	"	30 00
Rustic, short, 8 to 10 feet	"	$25 00
" " under 8 feet	"	14 00
T. & G., 6-inch, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
" " No. 2	"	20 00
" Beaded, 12 feet and over	"	27 50
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	20 00
Half-inch Surface	"	27 50
Pickets, fancy	"	20 00
" rough, pointed	"	16 00
Pickets, rough, square	per M feet	$14 00
Siding, ½-inch	"	20 00
Port Oxford White Cedar	per M feet	$30 00 to 45 00
Sugar Pine	"	30 00 to 50 00
R. W. sawed shingles	per M	2 25
Battens, ½-inch		75

HARDWARE AND NAILS.—We note the following prices:

10 to 60 pennies, are quoted at		$3 75
8 " " " "		4 00
6 " " " "		4 25
5 and 4 " " " "		4 50
4 and 5 pennies, brad heads at		5 00
6 " " " "		5 25
8 " " " "		5 00
10 and upward " " "		4 75
3 penny fines " "		7 25

Total imports since January 1st, 139,568 kegs, 2,383 half-kegs.

The Alameda brought 4,350 kegs, which has helped stock up the market. Demand has been light, and the market weak.

LUMBER.

We are indebted to the *S. F. Journal of Commerce* for the following very full report of receipts and exports of lumber:

Receipts since our last:

Lumber, feet	3,157,000
Shingles	2,840,000
Laths	140,000
Railroad Ties	15,850
Wood, cords	358
Hoops, bundles	233
Shakes	120,000

Total receipts since January 1st:

Lumber, ft	174,155,342
Shingles, No.	62,821,032
Laths, No.	16,070,800
Wood, cds	21,832
Piles, ft	63,000
" No	4,914
Cedar, logs	3,864
" ft	72,980
Rosewood, logs	32
Shakes	1,666,625
Pickets, No.	20,000
Hoops, bdls	8,054
Headings, bdls	58
Staves	14,799
" bdls	5,710
" cords	23
Railroad Ties	316,591
Posts	376,883
Sugar Pine, ft	2,598,000
Barrel St'k, pkgs	27,664
Spars	100
Wool Slats	000
Stave-bolts	000
" cds	552
Telegraph Poles	1,508
Ship-knees	391

There is a pretty good demand at present for lumber, at firm prices. The market is in a good state, with a light stock and an increasing demand.

Exports of Lumber since November 1st:

		Feet.	Value.
Nov. 1	Bertram, Rigby, Queen.	18,000	$360 00
1..	West York, Cork	9,000	180 00
1..	Francis Thorpe, Queens'tn.	5,000	100 00
3..	Granada, Central America..	20,000	380 00
3..	Granada, Panama	17,600	1,059 86
3..	Cormorant, Queenstown...	9,000	180 00
3..	Tamaya, Liverpool	6,000	120 00
3..	City of Glasgow, Queens'tn.	16,000	320 00
4..	Sir Wm. Wallace, do	15,000	300 00
4..	Parthenia, do	19,500	400 00
4..	Kaisow, do	9,000	180 00
4..	Edinburgh, do	20,000	500 00
5..	Alfred Adams, Acapulco..	17,000	340 00
5..	Grassmere, Queenstown....	17,000	340 00
6..	Annie Johnson, Dublin...	13,000	260 00
6..	Pharos, Liverpool	34,000	680 00
6..	Newbern, Mexico	14,243	411 75
8..	Manitoba, Queenstown....	10,000	200 00
8..	Highmoor, do	13,000	260 00
8..	Marlborough, do	11,500	230 00
9..	Colusa, do	16,000	320 00
9..	Britannia, do	13,000	260 00
9..	Bonanza, Tahiti	125,000	2,500 00
10..	Stuart, Liverpool	10,000	200 00
10..	City of Nankin, Queenst'n.	13,000	260 00
10..	Morna, do	17,000	340 00
11..	San Lewis, Guaymas	1,597	20 00
12..	Cambrian Mon., Queen'tn.	14,000	280 00
12..	Oriental, do	25,000	500 00
12..	Snow & Burgess, Liverp'l..	30,000	600 00
12..	Airlie, Cork	17,000	340 00
13..	Routenbeck, Cork	8,000	160 00
13..	Red Cloud, Liverpool	35,000	700 00
15..	North Star, Guaymas	8,458	178 00
16..	Hugo, Cork	22,000	440 00
16..	Loretto Fish, Queenstown.	39,000	780 00
17..	M. Godeffroy, Soc'ty Isl'ds.	80,000	1,600 00
18..	Leonora, Cork	27,000	540 00
18..	Mallsgate, Queenstown....	12,000	240 00
18..	McNear, do	23,000	460 00
19..	City of Panama, Panama..	9,000	252 00
19..	City of Panama, Cen. Am..	1,000	26 00
19..	Cape Breton, Queenstown..	16,000	320 00
19..	Occidental, do	16,000	320 00
19..	Canmore, do	10,000	200 00
19..	Beecroft, do	16,000	320 69
19..	J. A. Falkinburg, Hon'lu..	2,514	94 80
19..	Australia, Australia	160,462	3,923 00
19..	Australia, Honolulu	26,783	780 00
19..	Lucille, Liverpool	25,000	500 00
20..	Adelaide Mary, Cork	7,000	140 00
20..	Conqueror, Cork	24,000	480 24
22..	Kinclune, Queenstown	9,000	180 00
22..	Teutonia, Mazatlan	5,500	151 00
23..	Charger, Liverpool	24,000	480 00
23..	Chesceborough, Queenst'n..	10,000	200 00
24..	Antrim, Liverpool	12,000	240 00
24..	Warwick, Queenstown....	12,000	240 00
26..	Enos Soule, Liverpool	30,000	600 00
27..	Achilles, Queenstown	16,000	320 00
27..	President Mabire, do	12,000	240 00
29..	Quillota, do	10,000	200 00
29..	Rodell Bay, do	9,000	180 00
30..	Gryfe, Cork	10,000	200 00
30..	Dundonald, Liverpool	8,000	160 00
30..	Glendon, do	30,000	600 00
30..	Eustace, Guayaquil	95,162	2,334 00
	Total	1,476,299	$30,857 93

Exports of Lumber since December 1st:

		Feet.	Value.
Dec. 1..	Cherwell, Liverpool	18,000	$360 00
1..	J. D. Spreckels, Honolulu..	40,080	1,827 60
1..	Percy Edwards, Tahiti	5,680	119 00
2..	Khorassan, Queenstown...	11,000	220 00
3..	Loch Cree, do	8,000	160 00
3..	Lorenzo, do	18,000	360 00
3..	Colima, Panama	6,519	67 00
4..	Florence, Liverpool	25,000	500 00
	Total	132,279	$3,613 60

Exports of Shingles since our last:

		No.	Value.
Dec. 1—	Percy Edwards, Tahiti...	14,000	$30.

We quote cargo rates: Pine—Rough, $16 ₱ M ft.; No. 1 Flooring and Stepping, $24.50. Redwood—Rough, $16; Surfaced, $23. Retail rates: Pine—No. 1 Flooring and Stepping, $30; Rough, $20. Redwood — Rough, $20; Surfaced, $30; No. 1 Rustic, $30; Flooring, $27.50; Tongued and Grooved Beaded, $27.50; Fancy Pickets, $20; Rough Pointed Pickets, $16; Rough Square Pickets, $14; Shingles, $2.25 ₱ M.

CEMENT, PLASTER, LIME, ETC.

Imports since our last: Per Alameda, 1,000 barrels Cement.

Total imports since January 1st:

Cement, barrels	53,505
do casks	6,880
Fire-bricks	163,280
Plaster, barrels	2,950

Receipts of California Lime since our last: 2,840 barrels. Total since January 1st, 109,642 barrels.

The Alameda brought 1,000 barrels of cement; the market is quiet.

We quote Eastern Cement, Rosendale, $2.25@2.50; other $2.12½; Portland Cement, $4.50@5.25, as to quality and brands. Plaster—Eastern, $3.25@3.50; do. Golden Gate, $2.75@3.00. Lime—Santa Cruz and Sacramento, $—@1.50. Fire-bricks—35@40, jobbing at $40@50, as to brand. California. Brick—Hard, $10@12; Soft, $7@8; Red, $9@10.

Building Intelligence.

Although the past month has been very quiet as far as the letting of contracts is concerned, still, the number of buildings started, and their value, exceed the report in our November number. We could name several that would enable us to swell the list, but prefer to wait until our next issue, when we will be able to give full particulars. We know positively of one large building to be erected on one of our busy streets, where the piling contract has been let, and also the contract to supply the lumber—some 300,000 feet, the owner furnishing the latter. The old building now on the ground will be removed as soon as possible. Mr. Crocker has also commenced the improvement of his property on Post street, between Kearny and Dupont. The old buildings have been torn down, and grading commenced. It will be done partly by days' work. A full report will be found in our January number. The report about the erection of a building now occupied by a warehouse on Pine street opposite Union Block, for Mr. McCreery, seems to have been a little premature. The present lease does not expire until next March, and from what we can learn, no architect has prepared or is preparing plans for a building on the site mentioned. It being our last issue for the year 1880, we cannot but express our thanks to those who have helped us to make this department of our journal as interesting and *to be depended upon* as it has been during the past year. It would be invidious in us to mention names, and so we would take this method of announcing our warmest thanks to all those who have, during the year now closing, rendered us services in making the *Building Intelligence* a leading feature of this journal. We have perfected arrangements which will insure greater fullness in the future. Real estate agents in Alameda, Oakland, and Berkeley have promised us their co-operation in enabling us to give a full report of the erection of buildings in their respective vicinities. We extend our sincere thanks to the architects of San Francisco. During the whole year, with but three exceptions, we have not met with a single rebuff, or been refused answers to our queries in regard to contracts. We do not wish to publish the names of those who refused to give us information, hoping now that the new year is about to commence, and all doubts about the future of this journal have been set at rest, they will give us their hearty support, and enable us to point with pride to the CALIFORNIA ARCHITECT AND BUILDING REVIEW as the leading exponent of the profession on the Pacific Coast.

The prospects for building improvements are good, and much better than at any time during the past three years. But even under present conditions, mechanics generally, both in cities and country, are busy. There are a good number of buildings about to be commenced that will give employment to a great many men. Lumber is bringing its value, and our mill owners are enabled to pay their hands better wages than they did last year, thus giving the men a chance to lay away their savings, so that if we have another dull streak, they will have ready money to pay their way.

Architects, Property Owners, Contractors, Mechanics, and All: We wish you a Merry Christmas and a Happy New Year. Hoping to receive your full and hearty support in the future, as we have in the past, we now close our labors for the year, and thank one and all for the many kind acts which have made the *usually rough road* of the first year's experience in journalism particularly pleasant to the editor of the CALIFORNIA ARCHITECT.

SAN FRANCISCO.

Four-story and basement brick building on Market street, at junction with Front. Owners, Huntington, Hopkins & Co.; architect, Wm. Patton; contractor, Ewing. Total cost of improvements will be between $60,000 and $70,000.

Two-story dwelling on west side of Steiner, between Bush and Sutter. Owner, A. Sbarboro; architect, T. J. Welch; contractor carpenter work, J. Proll. Cost, $3,000.

New building and additions to the Standard Shirt Factory on corner of Grove and Gough streets. Owners, Neustadter Bros.; architect, P. R. Schmidt; contractors, Waterbury & Maxwell. Cost, about $11,000.

Addition and repairs to building No. 421 Mission street, near First; day's work. Cost, about $1,500.

Two-story and basement dwelling on Broadway, near Buchanan. Owner, O. Helmerick; architects, S. & J. C. Newsom; contractor, John Dougherty. Cost, $5,000.

Two-story and basement dwelling on corner of Webster and Sacramento. Owner, C. Wilkins; architects, S. & J. C. Newsom; contractor, John Furness. Cost, $5,000.

Two-story and basement dwelling on Geary street, between Webster and Fillmore. Owner, Geo. Law; architects, McDougall & Son; contractor, J. Furness. Cost, about $5,000.

Two-story and basement dwelling, including repairs to the rear house, on Howard street, between Eighteenth and Nineteenth. Owner, John Stewart; architect, W. P. Moore; contractor, D. W. Ross. Cost, $3,300.

Twelve houses, two-story, on Hoff avenue, between Sixteenth and Seventeenth streets. Owner, Carroll Cook; architects, Wright & Sanders; contractor, Burpbee. Cost, $18,000. (This was accidentally omitted in our last issue.)

Two-story dwelling with store, on S. W. corner Henry and Noe streets. Owner, F. George; architect, H. Geilfuss; contractor, F. Klatt. Cost, $2,700.

Brick house on corner of New Montgomery and Natoma streets, to contain a gasometer to supply Palace and Grand Hotels with gas. Owner, Wm. Sharon; architect, J. A. Remer; contracter for brick work, J. Hewes; carpenter work, R. McCann; gasometer, Leavitt. Cost, ——

Shed for the Harbor Commissioners on Broadway Wharf. Contractor, John McCann. Cost, $3,990.

Shed at Saucelito Ferry Landing. Contractor, Shaw. Cost, $1,300.

Shed at North Beach, on bulkhead. Contractor, T. H. Day. Cost, $13,600.

Two-story house with basement on Geary street, near Scott. Cost, $2,500.

Alterations of house on Scott street, near Turk. Owner, D. Vandenburg; architect, Mr. A. Schroepffer; contractor, Wm. Wharff. Cost, ——

Two-story frame on Turk near Scott. Owner, Mr. Cutler; contractor, D. G. White. Cost, about $1,500.

Improvements and additions to house on Devisadero between Turk and Tyler streets. Owner, John S. Gray; contractor, J. W. Spencer. Cost, about $1,000.

Additional story to the building used by the Risdon Iron Works on Beale street.

NAPA.

Two-story school-house. Architects, S. & J. C. Newsom. To be only partially finished at present. Contractor, J. Griffith. Cost, $3,999.

SANDWICH ISLANDS.

Two-story and basement residence for Claus Spreckels. Architect, Chas. Geddes. Day's work, and will cost in the neighborhood of $50,000.

SACRAMENTO.

Two-story frame dwelling on Tenth street, between K and L. Owner, Chas. McCrary; architects, Babson & Seadler of Oakland; contractors, —— ——. Cost, about $10,000.

TEMESCAL.

One-story and basement building to be used as a billiard room, near Temescal. Owner, Capt. Ainsworth; Architect, Clinton Day; contractor, —— Childs. Cost, ——

ALAMEDA.

Cottage on Alameda avenue. Owner, Luscombe; architects, Meeker & Banks; contractor, F. W. Knight. Cost, $2,500.

High street, three-story, attic and basement dwelling. Owner, Capt. R. Thompson; architect, W. Patton; contractors, Haskell & Smiley. Cost, in the neighborhood of $55,000. This job was reported before, but not fully.

Ten-room two-story cottage on corner of Buena Vista avenue and Oak street. Cost, about $3,000.

Five-room cottage on east side Park avenue, south of San Jose avenue. Owner, W. E. Brown; builders, Gilbert & Brown. Cost, $2,000.

Five-room cottage on east side Park street, between San Jose and Clinton avenues. Owner, A. Newman; builders, Gilbert & Brown. Cost, $1,200.

Five-room cottage on east side Park avenue, south of San Jose avenue. Owner, E. L. Wagner; builders, Gilbert & Brown. Cost, $1,200.

Cottage of five rooms and bath, on Eagle avenue, between Park and Oak streets. Owner, ——; builders, Gilbert & Brown. Cost, $2,000.

Four-room cottage on south side Encinal avenue, between Oak and Walnut streets. Owner, ——; builders, Gilbert & Brown. Cost, $600.

Stable on west side Pearl street, between Encinal and Central avenues. Owner, ——; builders, Gilbert & Brown. Cost, $500.

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FORMERLY THE QUARTERLY ARCHITECTURAL REVIEW

AUTHOR

VOLUME II

DATE 1881

PUBLISHER WORLD MICROFILMS PUBLICATIONS in association with THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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The California Architect and Building Review.

VOLUME II.
NUMBER 1. } SAN FRANCISCO, JANUARY, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect

— AND —

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

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and to our friends and well-wishers east of the Rocky Mountains, to assist by their subscriptions and personal influence in the permanent establishment of the FIRST AND ONLY ARCHITECTURAL JOURNAL ever published west of the great natural ridge which, to a certain extent, segregates California from the commonwealth of States.

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A Word With Our Patrons.

A success far greater than our most sanguine expectations, is the result of the first year's publication of this journal. Commenced as it was under the most inauspicious and discouraging circumstances, many predicted for it a limited career and speedy suspension. Judged by the fearful condition of the building business at the time of its first issue—the demoralized and chaotic state of affairs political and financial—the gloomy appearance of the then future, combined to furnish seemingly sufficient grounds for the prejudgment, that a new journal of special character could not be sustained. The early declaration made by its management, that "no such word as fail" would be considered, was received by many as visionary and problematic. But developed facts illustrated the well measured and calculated probability, and fixed determinations, upon which the enterprise was founded; and it is here and now repeated, that its continuance and permanency as a monthly publication, is tenfold more substantially assured, than when at the commencement of 1880, the statement appeared in its columns, that while life was spared to its present management, The CALIFORNIA ARCHITECT AND BUILDING REVIEW would continue to appear in the journalistic firmanent, seeking increased magnitude through earnest and diligent effort, and the many experiences which strew the pathway of those who aim for better and higher success.

Its second volume commences under widely different circumstances from those which existed one year ago. We forbear recital of the gloomy outlook which then depressed building and mechanical operations in all the various branches, to such an extent that but few ventured the hope that a revival would set in for years to come; and trade and commerce hung in the balances of uncertainty. But the clouds have already disappeared, and 1881 opens full of brightness and promise to the Pacific Coast, and the people of San Francisco rejoice again that the worst is passed and better times have come again. The indications are clear that a long-continued period of prosperity is before us. This conclusion is justified by the facts that numerous extensive enterprises have assumed appearances and proportions which forbid a doubt but that in the near future many of them will be consummated; while in building operations the number of large structures already commenced, and the many others seriously in contemplation, and for many of which plans are prepared and preparing, sufficiently portrays the disposition of mind among the moneyed men of San Francisco. The millions of gold which during the three years prior to the summer months of 1880, disappeared in bond and other investments, or was driven to other sections of the country for employment, seems to be returning and seeking its nest in property and building improvements and other permant ententerprises; which renders assurances doubly sure, that San Francisco and the Pacific States are about to enter upon a period of splendid successes.

IS THE BUSINESS OUTLOOK WELL SUSTAINED?

We think it is, and for many reasons: first among which is the fact that the indications manifest themselves more prominently in leading business circles, and among capitalists seeking investments of a permanent character. The inducements stimulating the present and prospective activities, have their origin in the well-sustained certainty that the commercial, manufacturing, and general business prospects of the Pacific States justify the utmost confidence in their future; while the mineral, coal, and other resources stand forth in such magnitude as to forbid the doubt that large and paying returns will not result from every judicious investment. This period of prosperity will naturally call back many who were driven away from this city by the mad follies of political demagogues and knavish would-be "reformers," who during the three years of their miserable rampage upon all right, law, decency, and common sense, and their

RECKLESS EFFORTS TO SECURE PLACE AND POWER,

cared not that the vital interests of the whole country perish, so that from its ruin they might build up a political pandemonium, in which the will of the masses would have been forced into submission to the dictates of men governed solely by selfish motives, and the spirit of rule or ruin.

IN THE BEST INTENTS OF THIS CITY AND STATE

the influence of this journal will be devoted with all the energy and ability possible in its management. While architectural, building, sanitary, manufacturing and mechanical matters will be its principal features, every other material interest and resource of this western coast will receive deserved attention, and through its columns we shall send to every portion of the United States, and to all countries wherein the English language is spoken or understood, correct and reliable statements, setting forth every material fact calculated to truth-

fully represent the advantages and best interests of the western slope of our great country.

To this end we invite and request the support of every citizen, *owners of real estate, merchants, business men of all classes, and manufacturers*, as well as architects, contractors and others engaged in house construction. For with sufficient support we shall increase the number of its pages, and enlarge its scope of matter and subjects, so that it shall be an acceptable

HOUSEHOLD COMPANION FOR ALL.

1880—The Flight of Time—1881.

Another twelve months has passed, and we are brought within the threshold of another year. Its events and happenings of good and evil, weal and woe, have all passed to the eternal record, leaving us only its experiences and lessons for future profit. And so time continues to roll on.

Its tramp is steady, quiet, rapid, sure, and its periods certain. It has been flying for myriads of ages, carrying with it growth and decay, happiness and misery, light and darkness, sunshine and storm, and still it speeds its onward course, heeding not the wails of grief and anguish, as it lands one after another of the human family beyond its confines. Its history is made up of joys and sorrows, hopes and disappointments, bright suns and dark hours, silvery lit and starry skies and midnight gloom, balmy zephyrs and resistless storms, each and all passing away *in the breath of time*. Millions of years mark its duration, and millions more will yet pass to its account; yet it matters not now fast it flies, if, in its flight, it bears no story of misspent days and hours, as far as those now wafted upon its ever-vanishing course are concerned. Its records will tell how well or badly each has improved its fleeing moments. That which has been and is, we know. That which is beyond in the vast immensity of the great hereafter, is hidden from human knowledge by the dark and impenetrable veil of uncertainty, through and beyond which no mortal eye hath seen or penetrated, except so far as revealed to multitudes who live in the light of faith in things not made manifest by sight, allured by the angel Hope to realize that when time and mortality to them shall have passed away, a brighter and better condition awaits them, where purified from all the entanglements and ills of time, the realms of purity and perpetual rest will be entered and enjoyed; where, in the immortality that will abide forever, they will revel in scenes of perpetual peace and uninterrupted love and purity. Thus the votaries of Hope, holding faith in future bliss, draw consolation to themselves, and the embitterments of time are mellowed and softened by the dews distilled from faith in things hoped for. Still flying time stops not nor pauses in its speedy passing away, nor stays its onward course, because from its embrace millions and millions of human kind have passed away, nor any remain beyond their allotted time to enjoy its enchantments and opportunities.

Dangerous Errors in House Construction.

But few persons, even among the intelligent classes, realize the fact that many of the ailings and sicknesses experienced in families, are produced by the improper construction of their dwelling places. The ostrich when pursued, presumes security from danger, upon finding some recess in which to hide his head; although the hunter's steed may be near at hand, and perchance the archer's arrow in the air, upon its message of death to the deluded bird. So with many people. The dangers which surround or lurk within ill-constructed buildings are overlooked and lost sight of in ambitious embellishments and show, and a desire to have a fine appearing "place to call their own"—which the Indian's wigwam and the Laplander's hut may far excel in sanitary points of view.

In the erection of buildings, everybody aims to have a "first-class house of its kind," but where such aims have no more intelligent application than in words, the "first-class" feature disappears, leaving the intention a myth—a something conceived, but not realized; and those who nestle themselves under roofs where unhealthful agencies are not properly guarded against, exhibit but little better judgment than the silly ostrich.

People generally forget, or are ignorant of the fact that the "higher style of living," with the enjoyment of "modern improvements" in house construction, imposes increased intelligence in numerous connections. The finer the lines are drawn, the more delicate they become; and should, therefore, be the more carefully handled. In rude cabin and cottage life, nature provides, regulates, and equalizes the nature and fundamental laws and principles of health and sturdy manhood, and generally deals out rosy cheeks and pure blood to those who dwell in contentment, with less pretentious surroundings, breathing the pure air of heaven as it comes from earth's great laboratory of health. While those who seek to control these, and by mechanical or other arts and devices, provide for themselves finer and more elegant comforts, also surround themselves with attendant risks and dangers.

But the purpose of this article is not special to this view of the case, but to the other material fact, that there are innumerable neglects practiced in the erection of buildings of every class, not conservative of human health. In previous issues of this journal will be found numerous original articles treating the subject from a California stand-point, together with numerous extracts from Eastern journals, containing statements which should receive full and intelligent attention. And it is a matter of strange surprise, that in the face of the many existing practical, scientific and theoretical facts presented, that greater interest is not awakened. In the future, as in the past, defective house construction will be a prominent subject in these columns, and we shall present the materialities involved; not alone theoretically, but as gathered from the experiences of long years of individual practice; and we shall be greatly indebted to architects, contractors, and owners in this city, and from all parts of the Pacific Coast, for articles and suggestions bearing upon the subject-matter referred to in this article.

The Formation of a Society of Architects.

It is with pleasure that we announce the fact, that the architects of this city have almost unanimously decided upon the organization of a society in the interest of the profession. We hope that a permanent consummation of the movement may be accomplished, and an organization founded which shall be perpetuated for all time.

Its permanency and usefulness will depend wholly upon the spirit and disposition of its members. If established upon broad and liberal views as to its purposes and possibilities, and a generous, unselfish, and kindly disposition on the part of its members toward each other is made the rule, its many influences for good will in due time manifest themselves in various forms.

If failure to organize such a society permanently occurs, it will be from other causes than an absence of intelligence on the part of members of the profession; as it is fair to assume and claim that the gentlemen practicing architecture in this city, enjoy at least an average degree of mental culture and professional abilities; and in some cases comparative, if not co-equal, qualifications with the leading architects of the United States.

It will therefore be a source of regret, as far as the reputation of the profession is concerned, and a reflection upon those engaged in its practice, if failure is permitted. The fact that some have secured wealth, and a practice which creates and fosters a feeling of independence, is not a sufficient reason why they should withhold their counsel and influence. If the issues involved were reduced to the care, or don't-care standard, there are, perhaps, but few who could not risk such a determination. But higher and better sentiments should govern in this matter, and all feel that a common interest is to be protected and fostered. And if the right spirit pervades and influences the movement, and a feeling of proper professional regard permeates its membership, each striving and working to establish an organization, to hold membership in which will in due time become an honorable distinction—a result will have been attained, worthy the best and most earnest efforts of every gentleman pursuing the practice of architecture on this coast.

The most damaging feature imposed upon the profession in San Francisco has been that of individualism, and the estrangement of its members. The competent and qualified have been content to swing upon the hinges of their personal influence, and have not sought to surround the profession with any of those corrective and protecting safeguards and conditions necessary to preserve it from the ingress of men in no wise qualified to delineate its intricacies and beauties, nor demonstrate in practice, the principles and science of architecture in any fair degree. Consequently, all barriers being removed, and the field of architectural practice being unguarded, many have entered to gather its fruits, who have neither ploughed nor sown, and those who have endured the toil and fatigue of hard study and incessant application, have supplied the material which incompetents have used in their efforts to "make a living" in pursuit of a practice, the pure and elevated science of which to them is and will ever remain an unsolved mystery.

The incumbrances resting upon and experienced in the profession to-day are altogether chargeable to the neglects and indifferences of its leading and qualified members, who have permitted these incubuses to propagate. Had the pruning-knife of a well regulated society been in existence, and receive proper handling, the profession on this coast would enjoy a much higher and more commanding position.

In conclusion, we make the earnest appeal to the architects of the Pacific Coast, that while past errors and omissions cannot be obliterated, it is both possible, practical, and wise that the future shall be so shaped and guarded as to yield the delicious fruits of harmony, good esteem, generous sentiment, and professional friendship and council, which far more befits those who assume the practice of a profession which for successive ages has passed down its honors and emoluments to these who have intelligently and faithfully delineated its sciences, than indulgence in selfish and ignoble jealousies, above which no man should consider himself too important to rise in his better manhood.

A requisition by the following architects is hereby made for a preliminary meeting, to be held at two o'clock P. M., Thursday, January 20th, 1881, at the Mechanics' Institute, on Post street, in the old Chess-room, third floor, for the purpose of forming an Architectural Association in this city.

AUGUSTUS LAVER,
WRIGHT & SANDERS,
WM. PATTON,
J. A. REMER,
WM. MOOSER,
VICTOR HOFFMAN,
T. J. WELCH,
P. J. O'CONNOR,
CURLETT & EISEN,
H. C. MACY,
P. HUERNE,
C. GEDDES,
H. D. MITCHELL,
B. McDOUGAL & SON,
J. MARQUIS.

Building According to Price.

It is not an uncommon thing for some contractors to offer in palliation for neglects, omissions, poor workmanship, etc., in connection with the erection of buildings by contract, that they "are doing the work as well as they can afford to, for the money stipulated in the contract"—the contract price. The absurdities of such deductions are self-evident, and really require no argument in rebuttal. Plans and specifications, together with the stipulations of contract, are supposed to govern all matters in connection with contract work, and such is their purpose and intent; and no intervention of error in estimate can be legitimately pleaded in palliation of either workmanship or materials inferior in character or quality to the fair and true requirements thereof. To admit the consistency of such a proposition would operate as a virtual setting aside of the original intentions of the papers, and the substitution of the contractor's dictations, as to what should be done and furnished, basing his conclusions upon the value of the sum of contract as fixed by himself.

Plans and specifications are supposed to, and should define exactly what is intended and what will be required, and these should govern in all cases, irrespective of any and all mistakes made by those figuring upon the cost and value of the work

estimated upon. And if haste, oversight, or insufficient competency leads to financial error, no one is to be blamed for the consequences, except the party committing the error; nor is he entitled to any ameliorating considerations in a business sense. Men should therefore be careful in making up their figures, so as to avoid error and loss; and if from any cause within their own control, they fail to protect themselves by correct estimate of values, a sense of right should induce the manly assumption of all responsibilities resulting from their own acts.

If contractors always exercised the same degree of earnestness in reaching right and safe conclusions, that some do in obtaining contracts at all hazards, it would be infinitely better for contractors, owners, and architects, as in that case all cause and necessity for "close work" would be removed, and the disposition to produce good work and satisfactory results would prevail. On the other hand, just so long as bidders diminish and break down values for the sake of "beating" fellow-competitors, the inducements to owners to stimulate greater competition is increased, in view of the prospective advantages thereby offered.

The poorly remunerative character of the contracting business is more the fault of contractors' great and often unwise anxiety to secure work, even at risky prices, than the abstract matter of competition; for if good judgment controlled in all cases, and work was figured upon by correct rules and with good judgment, fair and satisfactory profits would take the place of the continual cry of small pay and losses: and exculpatory pleading would cease.

If contractors would assume and assert their equitable and manly rights, and figure upon the basis of true values, they would secure to themselves a dignity that would do them credit, and instead of average financial inability to carry through jobs of any considerable amount, without pay as they go, and besides assistance from material-men, etc., they would enjoy the benefits of personal, financial soundness, which to them would be far more comfortable, while the cost to owners in the erection of buildings would be lessened by the doing away of that feeling of mistrust which induces increased prices on the part of producers of and dealers in building material. It is a well-understood fact that the prices of material on this coast have ruled higher because of the many losses sustained. Margins for losses are enforced in fixing the prices of materials, and good men are made to pay the defaults of irresponsible and impecunious parties, who themselves are not benefited beyond the amount abstracted from moneys received during the progress of the work in hand, while the entire contracting business is degraded and injured through their acts. A higher and more intelligent system of contracting is what is needed on this coast.

EDITOR CALIFORNIA ARCHITECT AND BUILDING REVIEW:

Dear Sir—Your article in the last issue, under the heading of a "Justified Complaint," must certainly meet the approval of all honest and right-thinking contractors, and I do hope that they will assist the architects in rooting out this dishonorable practice of making sketches, presenting the same to those about to build, and asserting that no architect is needed; if this will not succeed, then an attempt is made to ruin the character of the architect, by insinuations and hints that would convey to the mind of the owner that the entire profession is dishonest. Should the party about to build be a man of intelligence, he, the builder, is aware that his pencil sketch will not do; hence application is made to some young student in an architect's office, and the business is done "on the sly." The owner exhibits to his friends the handsome plan made by Mr. ———, the contractor; the work is obtained, and during the construction, or after completion, the owner finds to his sorrow that the builder had an object in view when he used the expression, "You don't want any architect." Now, Mr. Editor, it is a well-established fact, that the architect who has a pride in the elevation of the profession, has always courted and desired the friendship of competent and honest contractors, and those connected with the various branches of work attached to the building, viz., masons, plumbers, painters, etc., recommending them to owners for their various qualifications, so that good work might be obtained. In conclusion, I would say, if architects would look sharper after their own interest and this class of builders that are destroying the profession by their *false charges*, they would not be using expressions of disgust for the business, and further, would be enabled to support their families, as many are unable to do so at present. AUDACTER ET SINCERE.

The irregularity hinted at by our correspondent should command the interest of all competent architects, contractors, and owners, as the practice continued must have a demoralizing and ruinous effect upon the architectural profession, and change all right rules of procedure in the production of plans for buildings, while owners will become the prey of scheming men, through deceitful practices. No voice cries "stop thief" louder than these guilty of the stealing. And it is safe to say that the interests of owners will be as well protected, if not much more so, in the hands of any competent architect, than when intrusted to those who express the underlying and secret motives which control the acts of those who seek to gain personal advantages, by the impeachment of the integrity of others, in no sense less than their equals.

We are aware of the fact that we are treading upon disputable grounds by these remarks, but fear not the issue. And we further admit that practices have obtained in the profession, by no means pleasing to men governed by principles of truth and integrity. And this journal has persistently made the issue, and will hereafter combat more fiercely every irregularity that develops itself, whether architectural or mechanical. And in doing so, we earnestly ask the assistance of all parties in interest to a correct and reliable system of architecture and house construction—owners of property being the most specially interested parties.

All branches of business and all professions are managed by men, and ever since God made Adam in the garden of Eden, men of their respective times have *averaged* about the same, special and extraordinary developments of virtue and integrity being the exceptions, and the rule of judgment is safe, that architects, as a class, are at least the equal of a like number of human beings in any other calling or business. And when an attempt is made to reduce them below an average standard as a class, the law of common fairness is violated, and the comparative conclusion must prevail, that personal intent and motives guide to such a course.

Laziness.

LAZINESS is an inherent defect in some men's natures, while in others it is a cultivated evil—a sort of moral disease. We have known men of industrious habits in their earlier years, who in after life have yielded their manhood to the debasing desire for ease and rest, ere the battle of life had produced any result to justify them in quitting the pursuits of honest toil. Those from whom fortune has withheld her bounties, have no good right to claim the comforts (!) of idleness; and he is no less than a coward, who lays aside the weapons placed in his hands by circumstances—the god, the power, that makes and enforces conditions of life to all. If the good we desire is beyond reach, waste not the strength of noble manhood in attempts to grasp the impossible. Those who listen to the mythical allurements of great things craved, yet far beyond reach, and ever growing more distant when craved and sought for in idleness, rob themselves of those solid comforts which fill the soul of the earnest, working, patient one, with daily, hourly comforts, and gild the paths of life with pleasures, bearing the contented calmly, softly, sweetly, down through all the rugged happenings of life, to that quiet repose and rest, whose shadows bring terror and sorrow to those who have quitted the surer, if less enchanting, for the more fascinating and fanciful. The energy to do all that life, circumstances, and conditions require, is noble and worthy; to do less is the work of indolence, which robs the soul of true joys, and weaves the curtain of regrets for the dying hour.

☞ **Bound Copies of this journal for 1880 can be had on application at this office Price, $2.50 per volume, post-paid to any address. We also have a few volumes with the Quarterly Review of 1879 added. Price, $3.50.**

News From Abroad.

"The manufacture of paper bricks is said to be carried on extensively in the West, and especially in California, where the best fibrous material is provided. The quality of the bricks renders them well adapted for building purposes. The Chinese make the soles of their shoes of paper similarly prepared."

Will some one inform us where the California paper brick manufacturing concern is located. We have not heard of it before, and as numerous brick buildings will be commenced this Spring in San Francisco, a good opportunity will be opened for the introduction of paper bricks for "building purposes." Where are they made, and what is their price? Who knows?

Contemplated Building Improvements in San Francisco.

No one more than ourselves desires the immediate, rapid, and permanent growth and prosperity of this city. Great in its location, surroundings, and resources, it is merely a matter of time, when it will become to this western slope of our common country, what New York is to the Eastern States. Still, we cannot approve the course pursued by some of our contemporaries, in publishing statements of present and prospective activities in real estate and building improvements, which are without the shadow of foundation in fact. Within the past month, an evening journal particularly, has issued statements of immediate and large intended improvements, which were and are incorrect in every particular, as far as the erection of buildings are concerned. It has been stated that plans were being prepared, in cases where the property was bought more for speculation than improvement. We fail to discover the advantages of such erroneous statements, and agree with the business sentiment of San Francisco, that a prudent relation of facts better subserves public interests.

This, however, may be stated as true, that a most pleasing and encouraging sentiment pervades all classes—owners of real estate, business men generally, dealers in building materials, architects, builders, and all parties interested in building operations; and this general feeling of confidence presages a period of coming prosperity.

The work of clearing the lot designed to be improved by Mr. Phelan with an elegant structure, is being vigorously prosecuted, and work on the new building will be commenced as soon as possible. The contract for the laying of the bricks has been let, and other arrangements perfected, which will insure speedy progress. Various speculative statements have appeared in print, varying the cost of the building from $400,000 to $1,000,000, but as a large proportion of the material is furnished by the owner, and the work let in detached portions, no accurate statement can at present be made.

Mr. Crocker's building, on Post street, between Kearny and Dupont streets, is in progress, and will, when finished, add another to the number of substantial edifices in this city.

THE lot owned by Messrs. Sol. Wangenheim & Co., fronting along the east side of Davis street, 91 feet 8 inches south from Sacramento street, has been cleared of the old frame buildings, and the work of piling commenced, preparatory to the erection of an additional building covering the unoccupied portion of the lot. Three years ago the firm erected a three-story brick at the corner, occupying a frontage of 33 feet by 117 feet. This leaves 58 feet 8 inches by 117 feet to be improved. The new section will be four stories, and to complete the uniformity of the edifice, a fourth story will be added to the corner structure. When completed the whole will be 91 feet 8 inches by 117 feet, four stories high and cellar.

IT IS questionable whether the directors of the Mechanic's Institute could have selected a more desirable site for their proposed building, than that secured by them on Larkin, Hayes, and Grove streets. It is contemplated to dispose of the property owned by the Institute, situated on Post street, and to apply the proceeds as far as they will go toward the erection of the new building. Other facts in reference to this matter will be duly noticed as fast as they assume tangible shape.

"RUMOR" reports a large number of contemplated improvements, and among them many fine residences; but as no real advantage can be gained

by a rehash of the many stories told, we prefer to withhold statements of a speculative character, and await the developments of matured determination on the part of owners.

We earnestly request all parties in possession of reliable information in this connection, to communicate the same to this office, as it is desired to make these columns an unvarying medium of truthful representations. We know of quite a number of owners who *intend to build*—perhaps soon—perhaps never.

Equal to the Situation.

"A newspaper proprietor advertised for an advertisement canvasser, and his test of the applicant's fitness, when they appeared, was to tell them to get out of his office that instant, or he would kick them out.

Several timid young men turned tail and left him with great disgust; but one, more brazen-faced than the rest, nothing daunted by the threat, coolly sat himself down and swore he would not go until his testimonials had been read; so he locked the door, put the key in his pocket, and handed in his paper.

'Ah,' said the advertiser, 'you'll do, I can see! I dont want testimonials; your style is enough for me. No one will ever succeed as an advertisement canvasser who will be influenced by a threat to be kicked out of an office. You evidently understand your business.'"

One thousand just such canvassers can secure profitable engagements on the CALIFORNIA ARCHITECT AND BUILDING REVIEW, provided they can give satisfactory assurance of honesty. Our experience during the past year has not been satisfactory. One fellow, G. R. Drant, secured a considerable number of subscribers in this city, San José, and Sacramento, and never returned one dollar to this office. As nearly as can be ascertained, he procured about one hundred names, and pocketed the proceeds in full. Three others did likewise in small amounts. Still, the opportunity is open to responsible parties in any section of the Pacific States, and wherever this journal is received and read; but we shall not hold ourselves responsible for the acts of those who, *without authority from us*, collect subscriptions, pretendedly upon our account. All duly authorized canvassers and agents will be provided with unmistakable evidence of their genuineness, in the form of printed receipts, and certificates of appointments. To avoid possibility of error, names should be sent direct to this office by postal card or letter, and the subscription amount by *postal money order*. We earnestly invite subscriptions from all parts of the United States, and we urge our claim upon the people of this Coast for

10,000 CASH SUBSCRIBERS,

pledging in return a valuable and thoroughly interesting journal, which in time will become an indispensable and necessary publication, by reason of intrinsic merit.

New Plan for the Drainage of Chicago.

A committee appointed by the Citizens' Association, of Chicago, to devise a system of improved drainage adapted to the present and future needs of the city have reported in favor of a vast sewer to drain the entire district traversed by the Chicago River. The estimate cost of the work is $6,850,000, but it is thought to complete it in every respect the sum of $12,000,000 will probably be necessary. The line of the proposed sewer, as shown on the map made by the engineer of the committee, Mr. A. J. Mathewson, is as follows: Commencing at the mouth of the Regula or Mud Lake fork of the south branch of the Chicago River, it runs west through the lake toward the Desplaines River north of Summit; then curving to the left it passes in a southwest direction between the canal and the river to Mount Forest, Willow Springs, Sag Bridge Station, and Lemont, to the Romeo bend of the canal, Norton's tail race at Lockport, and to a point opposite Lock No. 1 at Lockport; thence to a point at the head of the pond of dam No. 1, Joliet, a few hundred feet northwest of Lock No. 4, of the Illinois and Michigan Canal, a distance not far from 31½ miles.

For the southwestern terminus the sewer runs about 2½ miles N. N. E., to a point opposite Lock No. 1, with a fall to the south of about 12 feet in bottom of sewer, or 4 80-100 feet fall per mile, and the average width of 15 feet; thence north and northeast, past Romeo and Lemont, Sag Bridge Station, Willow Springs, Mount Forest, Summit, and Mud Lake, or regular route, touch Bridgeport, a distance from Lock No. 1 of 20 miles, and an ascent of 1 foot per mile, making 20 feet fall from Bridgeport to Lockport in bottom of sewer, with a width of sewer at lower end of 20 feet, and at upper end of 49 feet for compensation.

Good, substantial abutments and bridges at all crossings will be necessary throughout, and at Big Run, Norton's tail race, and Fraction Run, an arch about 300 feet long, in each, will be needed to let the water from these several places pass over the top of the sewer. The eastern portion of this route is already excavated to about the proper width, but not to the proper depth. The sewer when completed should draw water from the surface to the bottom of the river, low water datum line, for the first 29 miles. A portion of West Chicago and the town of Cicero, under an arrangement with the city, may drain directly into the main sewer. The amount of excavation for the above sewer, by a careful approximate estimate, will be 3,031,285 cubic yards; cost of excavation—earth and rock, slope wall, inverted arch in bottom, and the three arches aforesaid, $6,365,698; contingencies, engineering, etc., $483,625; total cost, $6,849,323.—*Scientific American.*

Fire Insurance Companies, Life Insurance Companies, and this Journal.

We very well understand that were it within the scope of possibilities, to remove all dangers of loss or damage to property, by fire or otherwise, and such were effected, all necessity for insurance would cease, and the anihilation of insurance companies follow; for where there are no risks or dangers of loss, there can be nothing to cover and protect by insurance guarantees. But the impossibility of such removal of dangers, renders insurance companies necessary and indispensable institutions; and although charges of unfairness are sometimes made against them, but few persons owning property would advise or desire their discontinuance as protecting agencies.

But the purpose of this article is neither to accuse nor defend the methods or systems of insurance, nor the rules and regulations adopted in the management of insurance companies; but to submit a few practical suggestions, which, while presenting the appearance of business motives on our part, also contain facts of momentous interest and importance, alike to the management of the various insurance companies and to their patrons; to patrons, because the safety of the assured exists in exact ratio and proportion to the abilities of the insurer to compensate when losses occur, and to the companies, in that it exposes defects in building construction, which, if corrected and provided against, will greatly diminish actual risk, and by the means of saving the paying out of large amounts on insured property—greater than would be required if proper construction was the rule.

It may be safely stated as a fact, that insurance companies have paid out, and perhaps within short periods of time, MILLIONS OF DOLLARS on insurance policies, where the losses occuring, *have been increased ten fold*, by *defective and inperfect construction*, and the neglect or omission of simple and easily provided precautions, requiring no more than fair mechanical common sense in their application; and it is a matter of surprise, that this feature of house construction has not in a special manner, attracted the attention of those managing insurance companies, followed by a rule that buildings erected without due regard to certain safety precautions against inflammability, should be charged increased rates on risk. It is scarcely fair and equitable that all building in the respective "classes" should be charged the same rates. The owner, who by prudent care, through a skillful architect, and competent and conscientious mechanics, secures the erection of a building in which nothing has been omitted, calculated to provide safety and diminish dangers and loss from fire, should enjoy insurance advantages over another—who, regardless of any thing except economy of cost, piles up timbers in the most completely combustible shape possible, and sneers at the mention of dangers from fire, because he is protected in his "*tinder-box construction*," equally with his more prudent and thoughtful neighbor, and at the same rates.

It is not intended to argue that the ordinary class of buildings, either brick or frame, can be made indestructible by fire; but the fact is sought to be enforced, that in the erection of either, mechanical principles and features may be introduced, which will largely restrict and diminish risks; and in this special view of the case, the general and specific interests of insurance companies assume magnitude, as the losses sustained are always in proportion to the *extent* of damages occurring. Consequently, any precaution which effectually lessens *extent*, saves money to those who are required by policy obligations to make good the losses sustained.

Examples are numerous, where fires have spread from the buildings in which they have originated, to others, with "astonishing rapidity;" while in fact, such spread of the flames has been as natural as the ignition of fuel thrown into a heated furnace; and with all the facts considered, surprise would be better sustained, if the fiery elements did not spread; for where open places are left in and between walls, etc., they invite and facilitate the destroying agencies. This was fully illustrated in the distruction of the Harpending Block in this city, where the flames defied the efforts of the fire department, and passed from building to building, until the entire row in rapid succession, was reduced to ashes; thus involving a loss perhaps ten times greater than would have occurred, had *good architectural and mechanical skill been practiced.*

These facts being absolute, they furnish ground for argument, that insurance managements should seek to sustain every such means and facilities, which in their nature and influence are calculated to correct and remedy the evils referred to; and in this connection we urge the claims of this journal, as destined by proper and sufficient support and encouragement, to produce improved practices, by which insurance companies will finally, if not immediately, reap large benefits, as it is conducted by these who not only claim to be fairly educated in the science of architecture, but also practically well informed in reference to the principles, theories, and practical in *mechanical* sciences and house construction. Consequently, all matters in this connection will receive intelligent and defensible handling.

The influence of this journal will be devoted to the creation of general sentiment among owners, and upon the part of architects and builders, against errors in construction, and as far as may be possible, by reasonable argument, to induce the practice of improved methods. By so doing, the risks of insurance companies will necessarily be greatly diminished, and the paying out of LARGE SUMS OF MONEY by them prevented. The almost undivided approbation accorded its management by the architects of San Francisco places this journal in a position to exert an influence for good in building operations. As in the past, so in the future, our best energies and abilities will be directed in favor of better and more secure and perfect methods, and the truly skillful and mechanical in house construction.

There can be no successful denial of the *fact*, that journals of special character exert a *modifying*, if not *absolutely controlling* influence upon the interests represented in their columns. And the desire and determination of the management of this publication is to secure for it such large and necessary financial support as will enable the accomplishment of the many purposes of good contemplated.

LIFE INSURANCE COMPANIES.

Arguments analogous in application to those already presented in this article, apply to life insurance operations, but as the facts in relation to the unhealthful and life-destroying effect of sewer-gases, imperfect ventilation, etc., etc., are so well understood by all intelligent persons, that special recital in this connection is unnecessary. Certain it is, that thousands yearly quit life's busy scenes far short of their otherwise physically allotted time, through agencies requiring simply right understanding of their nature, character, and effect to avoid. And every premature or untimely death, covered by life insurance policy, operates as an immatured draft upon the company issuing such policy, rendered payable prior to the proper termination of the period presumed in the contract.

The further fact is beyond dispute, that life insurance companies pay out annually millions of dollars upon policies, where the deaths result from the neglects and imprudence of the parties dying. When people presume to defy the natural laws impregnating and surrounding human life, and brave the deadly agencies which lie all along life's pathway, the victims of folly will be numerous. Against all these this journal has loudly proclaimed, and in its future management it is hoped that its presentations of *facts upon sanitary and health matters generally* may save many from that early dissolution which awaits those who disregard the well-defined laws in malarial, vaporous, and other deadly agencies, and with impunity fail to observe those rules of life which insure health and prolonged existence.

MANUFACTURERS should be warned by the fatal happenings which so often result from the lack of sufficient egress from buildings used for manufacturing purposes. There are in this city hundreds of buildings so used, which are no better than traps to destroy human life in case of fire. Ample and sufficient stairways and outlets should be enforced by law; and where lives are destroyed through lack of these, a penalty should be attached, which would impress large operators employing scores and sometimes hundreds of human beings, with the fearful character of such neglect. The life of the toiler is no less dear to him, because circumstances compels daily labor to procure support for himself and family. And the lives of women and girls who wear away their strength at hard labor, rather than obtain ease and comfort by a life of shame, should not be jeopardized by the neglects and "don't care" of their employers.

The recent destruction by fire of a large wall-paper manufacturing establishment in Buffalo, gives its lesson of warning, in the doleful story of the loss of perhaps a score of lives, every one of which might have escaped or been rescued had proper provisions been made for the ever possible contingency of fire. And the suggestion is pertinent, are those who permitted this to occur through *their neglect of proper precautions*, entirely innocent of the blood of those who perished because of such neglect? We should prefer not to have the sad responsibility resting upon us. It can scarcely be questioned, that the guiltiness of those who cause loss of life by willful and intelligent neglects and omission of reasonable, necessary, and proper means and measures to prevent it, is but little removed from that of those who destroy life by more direct and forcible means.

WE notice that our fellow-townsman, Henry Casebolt, Esq., is being consulted by the managers of street railroads in the larger cities of Illinois and Missouri, in reference to street cable-roads. Certainly no one enjoys a larger, personal, practical knowledge of the matter than MR. Casebolt; and his varied experiences, dating from the earliest introduction of street-railroads in this city, fully qualifies him to impart reliable information.

Although the daily journals of this city have sometimes criticised Mr. Casebolt's management of the Sutter Street line and its branches in severe terms, there can be no question but that during his administration of its affairs, he exhibited extraordinary determination and energy, and combated the difficulties that lay in his way, with an energy which but few men possess.

If other roads have since been laid and equipped in a more complete and substantial manner than the Sutter Street road, it should be remembered that the latter was the first to penetrate the "Western Addition," and that too when the streets were unpaved, and a thousand difficulties had to be encountered, not experienced upon any other line. The greatest mistakes made by the gentleman named, were that of too great a disposition to economize, and the adoption of the less costly, where the most thoroughly substantial should have been studied.

The quite long and severe experiences of Mr. Casebolt in street railroading, and his observations of the many and material improvements introduced by other lines than that managed by him, places him in possession of information enjoyed by but few men; and if all the advantages enjoyed by him are wisely exercised in his counsel and advice to our Western and Eastern neighbors, they will certainly be greatly aided and assisted in perfecting wire-cable roads, provided the difficulties of frost and freezing can be successfully overcome.

A MAN put out his kerosene lamp by blowing through the top of the chimney; the lamp exploded, and the damages are put down at $7,000.

New Memphis.

The Memphis *Avalanche* declares that all sanitarians who have examined the careful working of the new sewer system of that city, and who are familiar with the sanitary condition of other American cities, agree that Memphis is the best sewered and best drained city on the continent. The absence of sewer-gas, the abolition of all privy vaults, and the thorough underdrainage of the soil, are marked features of the Memphis sewerage-system that are lacking in other cities. The effect of this thorough sanitary revolution, the *Avalanche* continues, cannot but have a marked influence in decreasing the mortality rate, and it may confidently be anticipated that Memphis will hereafter be entitled to be styled not only the cleanest but the most healthy city on the continent.

How many other American towns and cities are waiting as Memphis did, to be depopulated and threatened with general bankruptcy in business as well as in health, by repeated epidemics, before adopting an adequate system of general sanitation? —*Scientific American.*

To the Board of Health, City of Oakland.

GENTLEMEN—Your Committee to whom was referred the investigation of sewer-gas traps, beg leave to submit the following report:

The inception of many of our most dangerous diseases is due to the escape of sewer-gas throughout dwellings, arising principally from stationary wash-stands, sinks, and other modern introductions connected with sewers; and probably no department of inventive genius has been put to a greater test than to devise something to thoroughly overcome the great evil. After a careful investigation of numerous appliances, we UNHESITATINGLY RECOMMEND the GARLAND IMPROVED SEWER-GAS TRAP, for wash-stands, sinks, bath-tubs, etc., as being at once *economical, effective, simple in principle, and not liable to get out of order.*

WM. H. BROWN, M. D.,
Chairman of Committee on Sewerage and Garbage.

Passed by unanimous vote of the Board, October 13th, 1880.

Hard-Wood Finishes in Building.

The desire for other than the ordinary best classes of plain lumber, for the inside finishes of buildings, is certainly becoming more general. A few years ago, the use of hard wood for internal finishes was confined to the more costly and elegant structures, and none but those possessed of princely fortunes and incomes asked for better materials than the first-class products of the pine forests of the world. But the opening of the golden gates of the Pacific discovered a thousand varieties of wood, which have been brought into notice from the various islands and countries washed by the waters of the Pacific Ocean. Some of them are not only handsome, but grandly beautiful, and so fascinating to the refined and cultured mind and eye, that the ordinary materials, which for generations answered all the purposes, and rendered neither the sons nor ancestors of our grandsires less comfortable and contented, are not considered sufficiently elegant by many who are far less than millionaires.

This advanced *instructive and refining* taste in house finishes is worthy of all commendation. The terms instructive and refining are most appropriate in this connection, for in many of the rich-grained woods now generally used, beauty is so largely developed, that he who cannot discover something to admire, and whose mind is so inert and stolid as not to recognize the wisdom, power, and majesty of Him who organized the sublime laws of nature, by which the universe swings on forever, and trees of ten thousand orders grow, flits away his life a stranger to at least some of the delightful things enjoyed by more appreciative and contemplative minds; and that which imparts pure instruction also refines and ennobles.

The fact that such woods are a luxury is no argument against their use, and those who can afford them manifest good judgment in their adoption, especially when a simple desire for something elegant, and not a spirit of pride and vanity, induce their indulgence.

Shall a Home Publication be Preferred?

The establishment of this journal in San Francisco has attracted the attention, and seemingly aroused the jealousies of Eastern publications of like character, as to this coast. At no period of this city's history has it been so thoroughly canvassed by prospectuses, circulars, "sample copies," etc., as it has been during the past month, and is at present.

We find no fault with our Eastern friends for this vigorous effort to extend their circulation upon this coast, as we also propose to press a thorough canvass in every State in the Union, even up to the doors of our editorial brethren in the Eastern cities, feeling confident that in the near future we shall be able to produce a journal of coequal merit—all things considered—with the best publisher east of the Rocky Mountains.

True, we are at a great disadvantage in numerous respects, but as the hindmost horse often wins the race, so we propose to close the gap which the experience of many years has given to some of our contemporaries, and by the proper use of the multiplied and daily accumulating facilities and resources which are attending our labors, we hope to secure at least a neck-and-neck position in the race for patronage, with others who have the advantage of an earlier "send off."

We have passed through so many difficulties in life that they have lost their terror, and have conquered so many that we smile at their frowns, feeling that the willing hand and stout heart has nothing to fear; neither does the fact that journals well and long established are seeking to spread their circulation around us, in any manner disturb the peace and tranquillity of our sanctum. Fortified by the determination to accomplish the success mapped out at the inception of the enterprise, no obstacle, of whatever magnitude, will be permitted to hinder that result.

But our point in this article is this: The CALIFORNIA ARCHITECT AND BUILDING REVIEW was the first, and is the only journal of its character published upon this coast, and the opinion has been freely expressed by thousands that "just such a journal is needed in San Francisco." That such necessity exists will not be disputed by any one conversant with the state of facts heretofore existing in connection with the architectural profession and house construction, and this fact renders the question pertinent—*Shall it be liberally sustained* as a HOME PUBLICATION? So far it has been, and that right handsomely, but **10,000 more** cash-paying subscribers are needed to place it within the power of its management to consummate its completeness in every department.

We say to those who prefer to encourage other journals, do so; but those who sustain this HOME WORK IN PREFERENCE will derive a large proportion of the benefits possible by subscription to distant publications, as tribute will be laid upon all available resources of information, and these columns be made the concentrated source and channel of all valuable and informative knowledge, even should it be necessary to increase the number of its pages four-fold.

A national monument in honor of the late King Victor-Emanuel is to be erected, and architects and artists everywhere are invited to compete for the design, with a special invitation to those in America. The limit of cost for the monument is 60,000 pounds sterling, and the prizes for the three best designs aggregate 20,000 pounds, the first being 10,000, the second 6,000, and the third 4,000 pounds. The selection of best designs will be in the hands of a Royal Commission which is to be appointed for that purpose, and September, 1881, the limit of time for submittal of designs. Query: Is the neat little sum of $50,000 for the best, or $20,000 for the third best, a sufficient inducement for some of our San Francisco brethren to enter the competition? The proposition extends even to Oakland, and we shall be rejoiced to know that the "second city of importance" upon the borders of the Bay of San Francisco, shall have won the world-wide renown which must necessarily attach to the successful designer, and the place of his operations. Certainly nothing could please us more than the opportunity to record the triumph of the Pacific Coast, if only for the third prize.

☞ Subscription price of this journal 1881 will be $2.00 in advance.

The Industries of the Pacific.

THE PACIFIC SAW MANUFACTURING COMPANY.

The establishment of this company filled a need that had long been appreciated here, and was received by a hearty welcome by our citizens. As the men who were connected with the organization were exactly the right men for their respective places, the company met with a splendid success from the start, which, in turn, served to still further demonstrate the power to produce as good saws as any place in the world.

In many branches of manufacture, we think California already equals, and even excels, the East; and when we come in contact with an establishment of this kind, we deem it but a duty we owe the public to make it known as widely as possible.

The business of this company was established by Messrs. N. W. Spaulding, C. P. Sheffield, and James Patterson, the present proprietors, in 1866, and was first located on Pine street, between Front and Battery, where they remained, till increase of business compelled them to remove to their present location, Nos. 17 and 19 Fremont street. The building occupied by the works is a substantial three-story brick structure, covering a lot 45x137½ feet. The accompanying cut shows the building to advantage. It is filled with all the improved machinery used in the manufacture of the specialties of this company.

This establishment has the most ample and complete facilities for the manufacture of saws of every possible description—saw mandrels, planing and curriers' knives, springs, etc.; also for repairing in all its branches, retempering, strengthening, gumming, grinding, polishing, etc.

The stones used by this company for the purposes of grinding, polishing, etc., are procured from Ohio. Over four tons of these stones are used every month. For some time, and at a considerable loss to the firm, they used stones from Alameda County, in this State; but the frequent recurrence of hard and soft spots prevented them from being adopted for general use.

This company, after a very extensive experience, has proved to a satisfactory demonstration that the steel manufactured at Pittsburg, Pa., is the best steel for saws, there being only one grade of English steel that can bear comparison with the American steel in general use by this company. The steel is sent here in plates from six to eight feet in length by sixteen inches to two feet in width, and cut the length required. Circular saws are prepared in the form of discs of the size required at Pittsburg, all sizes being imported, even to those 72 inches in diameter.

The tempering furnaces are so constructed that they will give a uniform heat, thereby avoiding those hard and soft places so common in saws, and every precaution is taken to avoid defects of any nature. They are guaranteed to be *evenly balanced* to run true, and carry a *good cutting edge*. Being practical mechanics, a saw is never allowed to leave the establishment without being inspected by a member of the firm in person. If any defect is afterward discovered by the purchaser, it will be remedied without additional charge, or a new saw given in exchange.

Saws of all sizes, shapes, and descriptions are made by this company, from the almost microscopic dentist's saw to the milling saw 16 ft in length, and from the hard inflexible butcher saw to flexible ribbon-like band saw. In every lumber section of the coast their workmanship is known and appreciated. They make some of the best circular saws in the world. Besides carrying on this industry, they make reaper sections, planer and currier's knives, saw mandrels, gummers, swages, and a variety of other articles made from steel. They have done much to enhance the fame of the Pacific Coast in the matter of inventiveness and manufacturing industry. An "Improvement in Saw Teeth" lately patented by N. W. Spaulding, of this firm, will soon cause a revolution in the manufacture of inserted tooth saws. To use the language of the letters patent, the point of this tooth is made "bonnet shape;" but as the reader has not the benefit of the drawing to refer to, we will change the phraseology, and say that the point of the tooth is a round-pointed gouge shaped tooth, the sides of the gouge near the point being swaged sufficiently to prevent the body of the saw from binding. As these swaged points are sharp, they cut their way through the timber, and not like the square or concave pointed tooth, tearing its way through. With this tooth *cutting its way* there is no "dodging" of knots or other hard points, and the lumber is smooth and of uniform thickness. As there are no points or angles to be broken or dulled, it is less liable to accidents. The cutting point is easily and quickly sharpened. From experiments made with this tooth it has been conclusively proven that fully fifteen per cent. of power is saved, and in sawing inch lumber one board in twelve, for the reason that there is less friction, and only kerf enough to allow the center of the saw to pass free. The object of this invention was the saving of lumber and power. The amount saved by the use of this tooth will evidently cover the present cost of sawing lumber.

Some mills erected in this State at a vast expense, have endeavored to run with imported saws, while their neighbors have used the home-made saws with an immense beneficial result, which ultimately compelled the other mills to do the same, when it was admitted that an immense saving resulted therefrom.

As another illustration of the excellence of the saws manufactured by this company, imported saws can be had at about one-half the cost of the home-made article, and it is found to be very great economy to pay the increased price, as the home-made saws *hold their set* much longer, and do not require such frequent filing, thus giving greater satisfaction while in use.

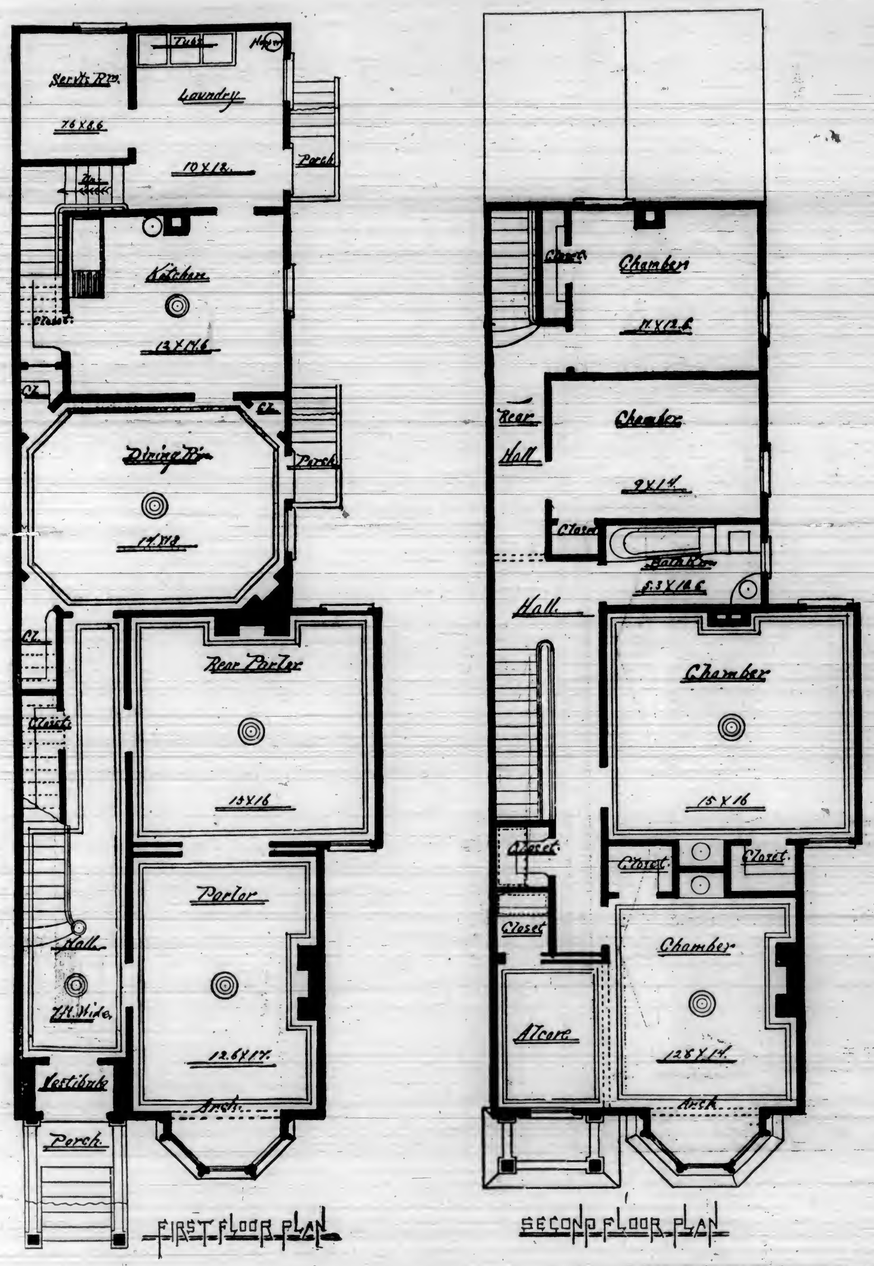
A specialty of this house is the manufacture of the N. W. Spaulding Patent Circular Saw Plate, with inserted adjustible teeth. This is an invention of incalculable value to the lumbermen and sawyers, as the plate of the ordinary saw, which is very expensive, becomes useless when the teeth are worn out. But this patent plate is so constructed that when the teeth are worn out, they can be detached and new ones inserted, thus saving the valuable part, *i. e.*, the plate, and affording the advantages of a *new* saw at a nominal expense. This is worth the special attention of all interested.

From thirty to forty skilled workmen are employed, and all work done by them is executed in a thorough and workmanlike manner, under the direct supervision of the proprietors, who are practical mechanics, and nothing but what is PERFECT in both construction and finish is permitted to leave their premises, no cheap work whatever being done, and no goods put out except those which can be relied on as of the best material and workmanship, as per the company's warrant. The members of the company are live, energetic, business men, and in no similar establishment in America can be found better or more reliable manufactures than theirs.

ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

DESIGN FOR A STONE FRONT.

ROYAL INSTITUTE OF BRITISH
MDCCCXLIV



FIRST FLOOR PLAN

SECOND FLOOR PLAN

PROSPECTUS FOR 1881.

The CALIFORNIA ARCHITECT AND BUILDING REVIEW is the only journal published west of the Rocky Mountains devoted *specially* to the *architectural* and *building* interests, and generally to matters sanitary, scientific, mechanical, etc.

Its second volume will commence with its January number, 1881, and including the *Quarterly* for 1879, its third volume.

Were it reasonably possible to place the subscription price at a less sum than Two Dollars per annum, it would have been done. But the excessive cost of publishing a journal in San Francisco over that experienced in Eastern cities renders it impossible to adopt a lower standard of subscription rates. Numerous disadvantages and outlays have to be encountered in this field of operations which do not present themselves in other places, and it requires infinitely greater labor and expenditure to accomplish like results with those produced where all the surroundings and facilities are favorable and easy.

The hearty approval and indorsements received, both at home and from abroad, give assurance that past efforts have been acceptable. But whatever of excellence may have been exhibited during the year journalistically closed with this issue, the pledge is here made that the most earnest and persevering efforts will be put forth to improve it in every department, so that in the near future, if it does not at present, this journal will compare in interest with the best of its kind published in any part of the United States, with *special superiority* as far as *the Pacific coast is concerned.*

The western coast of this great continent has never heretofore been fairly represented in many of its interests. Its wealth of gold and silver mines, its teeming fields of golden grain, and its fruit and wines, enjoy world-wide repute, but there are thousands more of comparatively wonderful things which have not received deserved attention. These in order will furnish material for future attention in these columns.

The architecture of California, methods of construction, and all other matters of interest in connection with house-building, will receive due attention and be fully illustrated.

At present and heretofore difficulties have attended the production of illustrations, but as the LIBERAL SUBSCRIPTION SUPPORT HOPED FOR comes to hand, these will be wholly overcome, and in the near future arrangements will be perfected which will insure the best within the range of possibilities on this coast; and, if need be, to reach satisfactory excellence, measures will be adopted which will of certainty insure coequal results with any journal published.

Although hundreds of notices complimentary to its editorial management have been received from all parts of the country, the engagement of additional writers, of acknowledged ability, will be a guarantee that its columns will contain a large amount of instructive and interesting matter.

An unfairness has heretofore been practiced by many of the "leading journals" in the Eastern cities, which it is hoped will not be repeated—that of copying original matter from the columns of this journal without credit. The fact that this has repeatedly been done proves the value of matter appearing in its columns.

The thirty years' residence of the editor nearly constantly in California, with some experience in Oregon, and two years in British Columbia, will be a sufficient guarantee that all representations in reference to matters upon this coast will be fairly and intelligently represented.

Communications from all parts of the country are greatly desired, and will be highly appreciated. The fullest information possible will be cheerfully given to all parties seeking the same through this office.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

DRY AND WET ROT.

BUSINESS MANAGER OF THE ARCHITECT.—I noticed in several issues of your journal, remarks on the above heading, and, as I have paid particular attention to the subject, I forward you my views, hoping they will be deemed worthy of a place in "Everybody's Column." If timber, whatever its species, be well seasoned, and be not exposed to alternate dryness and moisture, its durability is great; though from time it is known to lose its elastic and cohesive powers, and to become brittle, if constantly dry. On this account, it is unfit, after a certain period, to be subjected to variable strains; however, in a quiescent state it might endure for centuries. Dryness will, if carried to excess, produce this category. The mere moisture it absorbs from the air in dry weather, is not sufficient to impair its durability. So also, timber continually exposed to moisure, is found to retain for a very long period its pristine strength. Heat, with moisture, is extremelyinjurious to it, and is in most cases, productive of rot; whereof two kinds are the curse of the builder—the WET and the DRY ROT—though perhaps there be but little difference between the two. They appear to be produced by the same causes, excepting that the freedom of evaporation determines the former, and an imperfect evaporation the latter. In both cases, the timber is affected by a fungus-like parasite, beginning with a spicies of mildew, but how this fungus is generated, is still a *vexata quæstio*. All we know is, that its vegetation is so rapid, that often before it has arrived at its height, a building is ruined. Timber is affected with the seeds of decay long before we use it, and the comparative warmth and moisture of the climate, bring more effectually the cause of decay into action, especially where the situation is close and confined. Warmth is known to be a great agent in the dry rot, and most especially when moisture co-operates with it, for in warm cellars and other close and confined situations, where the vapor which feeds the disease is not altered by a constant change of air, the timbers are soon destroyed and become perfectly decomposed.

G. H. F., San Francisco.

The above remarks are well written; but we must caution G. H. F., *and all others*, not to try and palm off the words of other writers as their own. All would have been well, if our correspondent had simply said he would give us the result of his *researches* from various scientific works. As it is, nearly all of the above should be in quotation marks.

BUSINESS MANAGER OF THE ARCHITECT.—I have pictures of the Temple of Jupiter, and the Temple of Thesus. As far as I can judge, they are very similar in appearance, and yet the former is always spoken of as much the grander of the two. Is there any reason for that fact? ENCA, Berkley.

ANS.—Generally, objects in nature, as well as art, are called *grand*, from their massive size. About the only difference between the two buildings mentioned, is, the Temple of Jupiter was much the larger of the two, and if size makes grandeur, that would be the main reason for placing it first.

BUSINESS MANAGER OF THE ARCHITECT.—What will be the *length* of a brace, when the *run* is eight feet?

SAN PABLO.

ANS.—11.3132 feet. Reduce the decimal to inches, by the rule which we gave in our October number.

FRIEND ARCHITECT.—I have a room with a very low ceiling, and wont you please tell me what pattern of paper is best to use so as to make it appear higher than it is? The length of the room is more than double its width. OUT IN THE TULES.

ANS.—Try wall-paper with strongly marked lines. On the sides, have the lines horizontal, and vertical on the ends.

Our Illustrations.

Arrangements looking to improvements in this department of our work are in progress, and will be brought to the best practical perfection as soon as possible. During the past year, plans and designs for frame buildings have received the greater attention, as the residence buildings erected upon the entire Coast will average perhaps more than 90 per cent. of the whole number erected of wood materials. But brick buildings will receive proper representation and attention in the present volume.

We shall pursue the matter of brick residences, hoping in time to create a sentiment of appreciation. The objections entertained to their erection, can be fully overcome; and if a diversion in their favor is once created, their adoption by the better circumstanced classes will follow, to a large extent. We again assert, that brick buildings erected with hollow walls, are emphatically proof against dampness, and afford surpassing facilities for pure ventilation; and the assertion is entirely defensible, that they are better in a sanitary point of view. This we shall argue in future articles upon this subject. In the mean time, we invite communications in this connection, either in favor of, or opposed to brick residences, being satisfied that we can sustain the views entertained by us. Still, our columns are open to a full discussion of the question, and opposite views will be as freely given to our readers, as those favorable.

The plans and designs shown in this issue of the REVIEW will explain themselves.

The elevation for four-story and Mansard-roof brick building is an original design, with store at ground floor, and the other floors suitable for division into offices and rooms for various purposes.

Plan A represents a convenient, moderate cost city residence, suitable for a 25-foot lot, with ten rooms, including laundry and servant's rooms, and ample closet room, bath room, etc. Its cost can be made to vary from $4,000, according to the views of owners as to details, finishes, etc. The octagonal dining-room is a pleasing feature.

THE rains of the past month renewed the oft repeated proof, that the sewerage of San Francisco is bad—very bad—alike defective in engineering skill and mechanical construction. The numerous breaks and caves in various sections of the city, clearly illustrate that in stormy weather, when heavy rains prevail, safety to neither man nor beast is fully assured upon our public thoroughfares. The splendid advantages afforded by the generally hilly character of the city, providing unsurpassed natural grades in all directions, and the millions of dollars expended in sewer construction, should have secured to San Francisco a system of sewerage of superior excellence. But instead of this, the city is interlaced with underground conduits, which answer intended purposes very imperfectly.

There is vastly more in this defective sewerage matter than seems to impress the public mind with interest. Tax-payers complain at the onerousness of taxation for street and sewer purposes, and there is ample justification in such complaint, in the fact that the large sums of money expended in this connection have produced returns in sewer works so largely unsatisfactory. But the taxes paid into the city's *treasury* annually is not by any means the total of taxation imposed upon property owners in connection with street sewers. In but few portions of the city are the sewers sufficiently deep to carry off the seepage and drainage from ordinary deep cellars, and in fewer portions are they of adequate depth to permit the connection of side sewers running under such cellar floors. Consequently, thousands of owners are forced to incur additional expenses almost every season, to remedy difficulties arising from this cause. The connection of miles of side sewers with the mains, are within a few inches of the bottom of the latter, and in innumerable cases the accumulated debris in the street sewers obstruct the outlets of the branches, and prevents the passage out of poisonous matter which should be carried off rapidly, the retention of which in the branches decomposes and forms gases, which force their way back into dwellings and inhabited places, to jeopardize the lives of those who inhabit them: so that not only money is wasted, but human lives sacrificed, by the deplorable condition of sewers in San Francisco.

Malarial Disease in New England.

The *Sanitary Engineer* calls attention to the fact that malarial disease has made its appearance in many parts of New England, where it was never known before, and not only in sporadic cases, but in the form of a violent epidemic. The city of Springfield, situated on high ground a short distance from the Connecticut River, has had a thousand cases within six weeks, and all the towns on the river in Massachusetts, besides many in Connecticut, have been visited. This is the more remarkable, as New England has been considered to be, either from its vigorous climate or its rocky soil, free from this kind of infection. Until within two or three years, it is said that only two cases of ague had ever been known to originate in the New England States, both of which were consequent upon the draining of mill-ponds, by which the vegetable mud at the bottom was exposed to the sun. Since then, several cases have been reported near Boston, but the outbreak of this year is a thing quite unprecedented. It must be regarded also as foreboding worse troubles to come. Nothing is more certain than that the ague malaria, after it appears in places once salubrious, seldom quits its hold, but goes on increasing from year to year. The lovely district of Staten Island, in New York Harbor, was, twenty-five years ago, the synonym of suburban beauty, luxury, and healthfulness, and intermittent fever was unknown; but the malaria was somehow introduced, and spread rapidly, until the reputation of the island for salubrity is almost gone, and some of the most attractive portions are being slowly deserted. The same story may be told of many other towns in the vicinity of New York. We trust there will be some quality in the New England air which can resist the evil influence. Meanwhile, the Massachusetts State Board of Health has undertaken to study the subject as presented in that State, and its well-known efficiency promises interesting results.—*Am. Architect and Building News.*

More Accuracy Needed.

Attention is often called to the great discrepancies which are found in the different tables used by architects and engineers for determining the strength necessary for various parts of structures. In calculating the size of floor beams in buildings to be used for public assemblies, for instance, the architect finds the estimate given by different authorities for the actual weight of a crowd of persons to vary from seventy-five to one hundred and twenty-five pounds to each square foot of floor. As to the factor of safety also, or the ratio between the ultimate strength of timber beams and the strain which should be allowed to come upon them in practice, opinions differ widely. Some think that a third of the actual breaking weight is not too much to put on ordinary beams, while others are far more cautious; so that with such different values for two of the constants in the formulas, the results may vary so widely as seriously to impair our faith in the efficacy of such calculation. The application of the rules in other instances often tends to create doubt of their accuracy; as, for insiance, in estimating the resistance of brickwork to a crushing strain—perhaps, next to that for the strength of beams, the most important of the ordinary determinations. On this point the books differ greatly; some giving the safe load on a pier of brick in cement as three tons per square foot of sectional area, while others set it as high as fifteen tons, and yet we have seen such a pier which was estimated to be loaded with forty tons per square foot, standing apparently uninjured after several years' strain. In view of these diversities, it is not strange that the "rule of thumb" controls most building operations, even of a complex character, and, in consequence, that failures of the ordinary materials sometimes occur which would have been avoided by a very little forethought in studying the strains upon them. If more definite and reliable constants were at hand, and the proportion between safe loads and breaking strains on different materials established by repeated experiment, great advantages in point both of stability and economy would be secured, especially in large and complicated structures.—*Am. Architect and Building News.*

Lead in Drinking Water.

One of those rare accidents, a fatal case of poisoning by lead in drinking water, is reported from Granville, N. Y. A house occupied by a Dr. Nelson was supplied with water from a cistern, which collected the rain from roofs and gutters painted, it would appear, with lead. The suction-pipe to the cistern was also lead, and two or three feet of this were contantly immersed. Both Dr. Nelson and his wife were attacked, the former dying in a few days, while the wife is reported to be in a critical condition. It would be very desirable to have a further investigation into the case made by experts. That lead paint should have been used on the roofs seems to us very improbable. To say nothing of its cost, which would be much greater than that of the common mineral roof paints, its appearance would prevent its employment in any but extraordinary cases. We have known vermilion to be used for brightening a mineral paint for roofs, but lead, unless indeed, in the form of red-lead, or minium, would injure rather than improve the color. The pipe in the cistern would corrode and dissolve slowly in rain-water, but hardly with such rapidity as to cause sudden and fatal illness, unless this were the closing form of a long process of gradual poisoning. Whatever may be the truth of the matter, the case may serve to remind us of the importance, where rain-water from roofs is to be used, of guarding against all possible sources of contamination. Lead suction-pipes are too often used where enameled iron would be cheaper and better, and cisterns are left not only dirty inside, but so imperfectly covered that extraneous matters, animals, and insects, easily get in and add their decomposing bodies to the general impurity.

CHICAGO BOOMING.—The Chicago *Real Estate Journal* says: "The outlook is brighter than it was even in the most prosperous times both for building, rents, and land transfers. Every one is encouraged, and there are none so conservative as to claim that any vestiges of the panic of 1873-78 remain to cast a shadow over the prospects. The recovery throughout the length and breadth of the land is most complete. No one is necessarily idle. Every avenue of labor is open, and all who wish can earn enough for comfortable support. There is every indication of permanency in the revival, and if the people do not forget, and cease to practice, the lessons learned, there will never in this country be seen a repetition of the stagnation and consequent suffering which is now so happily ended."

Messrs. Bricknell & Comstock's new publication in ten parts, of *Modern Architectural Designs and Details*, contains a variety of lithographed plates, full of instruction and information to architects, contractors, and builders generally. Price, $1.00 each part, or number.

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

First Principles.

There is such a harmony in science, its various departments are so closely connected and correlated, that the knowledge of first principles is not only a necessity, but in fact, if properly understood, forms the means of an extensive and correct practical application. Without the understanding of the principles which underlie a science or practice, the most practical of men will enact or repeat the grossest blunders. Practice forms a not-to-be-underrated means of teaching principles, but it often requires a long experience, great practice, and at all times good judgment, to deduce principles, which an intelligent study of the theory of the science will convey to us in a shorter time and more satisfactory way. Practice should constitute the embodiment of known principles and the means of deducing new ones, but not, as now is often the case, a method of teaching or verifying old, well-known principles, which have long been accepted, and a knowledge of which would have prevented a useless expenditure of time and money. The greater portion, if not the whole of the work of finding the necessary strength of bridges can be reduced to an application of the principles of moments, and similarly the strength of the working parts of the steam-engine is to a great extent an application of this same principle. The numerous failures of roofs of buildings are solely due to a lack of knowledge of first principles. As a general thing the architect scorns the use of the formulæ of mechanics, of which he is too often grossly ignorant. The "rule of thumb" is the favorite rule adopted, and consequently when a roof is designed for a building of a form and size which has not come within his previous experience or that of his immediate advisors, the proper additional and required strength or "the extra inch of timber" is guessed at in a slipshod manner, instead of being calculated, and a truss constructed fully able to successfully withstand the strain to which it is subjected. "Accidents" like that of the Hippodrome and of the Post Office, New York, where one might have expected the best talent would have been secured, were due to the fact that instead of applying the fundamental laws of mechanics to compute the required strength, the architect thought the roof was strong enough—a matter of guess-work, and not positive knowledge as was within his power to have. The Tay bridge disaster was in the main due to the neglect of not considering the effect of the pressure of the wind, but this point has already been discussed at length in previous numbers of the *American Engineer*. In the construction of the Hudson River tunnel, attention was not paid to the universal law, that that portion of a structure which is most constantly used, and upon the strength of which the safety of the remainder of the structure and its occupants depends, should possess sufficient strength under the most adverse conditions possible. The principles of the conservation of energy are the basis of our reasoning relative to the transformation of energy in various modes of motion, and without a knowledge of these principles we must inevitably fall into error, and indorse valueless schemes for realizing fabulous power. In ordinary discussions in technical journals, especially in communications, this general lack of fundamental principles is being constantly exposed. We propose to enter this subject of first principles more thoroughly, and especially to present the views of some of our more prominent engineers upon the value of the knowledge of the first principles in particular, and more important branches of the engineering profession.—*American Engineer.*

Misapplied Comfort.

In the last issue of this journal, we criticised "No. 6 of series of copyrighted plans," exposing—perhaps severely, but justly—some of the many inconsistencies appearing in them; questioning the architectural or mechanical competency of the party making them, to produce an original new thing in house construction; denying in emphatic language, the correctness of the estimate by not less than 50 per cent—challenging the proof that there has ever been a single one or more "of the series" erected within or near the cost stated in the estimates, and regretting that a journal claiming influence and respectability, should lend its columns to the publication of matter containing so little of merit, and so much of misrepresentation and deceptiveness.

Our several criticisms in this connection have been fully sustained and justified by the facts of the case, and if our contemporary really intended to benefit its readers by the presentation of meritorious plans, and *fair* and *honest* statements of costs, more than to secure increase in its circulation and gain business advantages to itself, it would have discovered the necessity for greater practical skill in the preparation of such plans, and *far greater accuracy in the estimates of cost.*

We readily conceive that motives never entertained by us, have been and will be charged as the incentive to these criticisms; and we further conceive the uselessness of the declaration, that an honest purpose to expose error, and protect the architectual profession and the interest of the working classes—particularly skilled labor—has influenced the course pursued by this journal. Those who deal in misrepresentations, never willingly accord right motives to others.

The *misapplied comfort* alluded to, comes from Santa Barbara. In its issue of January 3d, the *Copyright Journal* published a communication from one of its "oldest patrons," and seeks to draw comfort and encouragement from his "friendly criticism;" while in fact, the writer says not a word in specific commendation of plan No. 6, but proceeds to discuss certain preliminary considerations in general terms, in reference to locality, surroundings, etc. This is followed by a third paragraph, which reads as follows:

"I will say a word with regard to the prominent portion of building No. 6, as it appears in the perspective, and more particularly of the stair-case hall, which is regarded as *the feature* of the building. I would first state, that in my opinion, the external appearance would be GREATLY IMPROVED if the front door were located centrally in front of the hall (steps to correspond), and a dormer window set in the roof directly above. And I would even go a step further and place a window on each side of the door. This would relieve this part of the house from its PRISON-LIKE APPEARANCE from without, and render it light and cheerful within; as it will be observed by referring to the plans that there is but one window on the room (or hall), and that one is over the platform of the stairs."

Having thus in a "friendly" way virtually knocked the whole front out of No. 6, the writer proceeds to change and rearrange the stairs, bathroom on second floor, and do such other things as "*would greatly relieve the nakedness of the roof, etc.*" This is followed by a denial that the plan of No. 6 is original on this coast, as plans of the same description made by him, antedates No. 6 "more than a year." And then to improve his opportunity for publicity, having virtually demolished No. 6, and by suggestions improved its "*prison-like appearance,*" "*greatly relieved the nakedness of the roof,* and *greatly improved external appearances,*" in effect suggesting a building so much unlike No. 6, that the original would be scarcely traceable in its main features and arrangement so far as attacked by "friendly criticism."

He then proceeds to extol one of his own architectural productions, by a lengthy description of its "Elizabethan" features, its four-story tower, its hall and environs, its storm doors, its vestibule doors with French plate-glass, its arched alcoves, its parlor, museum, dining and other rooms; its heavily corniced apartments, its two-story hall, its all glass bay window, 15x24 feet; its solid ash and walnut cabinet furniture, its tile hearth and granite facings at fire-places, its drinking-water fountain in hall, etc.

There being not the slightest comparison between No. 6 and the presumably elegant building referred to by the writer, we are forced to admire the skill of the Santa Barbara architect in virtually obliterating the "cheap dwelling" plan, and himself stepping to the front and lauding his semi-mansion-like residence in such a manner that the subject-matter of criticism disappears in the glow of grandeur thrown around the Santa Barbara building. The point, or puff is neatly gained by Mr. Barber, and we are *almost* surprised that the genius who controls the production of the "copyrighted plans," did not discover the well secured, if not intended point of the "friendly criticism." Our contemporary's *artist* might justly exclaim, "Save me from my friends!" in this style of "friendly criticisms."

Clippings from Magee's Real Estate Circular for December, 1880.

REAL ESTATE SUMMARY FOR 1880.—San Francisco, January 1st, 1881.—In our annual summary, published one year ago, we stated that, while we did not look for any "boom in real estate in 1880, nor any approach thereto," we did "anticipate a desirable increase in the number of sales and in the general prices of property." We then thought the prospect was good "that 1879, measurably at least, would end the depression" which had then for over four years prevailed in real estate. The sales of the year 1880 show that we were wrong in the opinion then expressed and quoted above, simply because the calculation then was, that we had secured a reform Board of Supervisors. Each member had pledged himself to keep the city tax levy down to one dollar; but the majority broke their pledges, sold the city, and ran the city tax rate up to $1.57. But for this, well-located real estate would last year have increased in value, and sales would have been far more active. The sales made in 1880, it is true, show a decided increase in number and value over those of 1879. The number of sales made in that year was 2,217, of the value of $10,318,744, while 2,331 sales were made in 1880, of the value of $13,994,989; but, while the sales show this increase in number and both actual and average value, prices have as yet shown no increase whatever. *All* property—even the best and most central business property—is still lower in price than it was five years ago. This is also true of all residence and homestead lots in the Western Addition, where there has been the most demand for such property. Prices are in one sense relatively higher, though—that is, the prices of five years ago were prices created by inflation, while those paid to-day are bed-rock rates. Though the population of the city has not grown much within five years, and though business has been dull, the State has grown, and the prices of to-day, though not higher than those of five years ago, are *relatively* higher, for the rates in one case were unjustifiably created by inflation, while those of to-day are based on growth and reduced rates of interest.

SALE OF LOTS NEAR THE PARK.—John Middleton & Son will sell at auction this month, at a date hereafter to be fixed, fifty very finely-located lots on Tyler, Turk, McAllister, and Willard streets, just east of First avenue, and almost adjoining the Park. We call the special attention of small buyers to this sale.

FALSE REPORTS OF REAL ESTATE SALES.—The *Bulletin* last month represented that $250,000 had been offered and refused for a large piece of land on Mission between Eleventh and Twelfth. This report was incorrect. The owner says if she had been so foolish as to refuse the price named by the *Bulletin*, the Lunacy Commissioners would have been justified in at once incarcerating her in Napa. The *Chronicle* last month reported that the Pacific and Union Clubs had amalgamated, and were likely to purchase a lot on Post, above Montgomery, or on Powell, north of Geary. The Post-street lot would not be sold unless other and much larger property went with it, while the Powell-street lot is too far from the business center to suit the business men who form the clubs named.

NEWSPAPER NOTICES OF AUCTION SALES.—Some of the daily papers—one of them is chiefly responsible—has lately taken to writing up one firm's auction sales, even when the property offered or sold is a few scattered pieces, the sale or failure to sell which has no bearing whatever on the real estate market. There is no justification whatever for making special mention of property sold at auction, unless in some exceptional case, where a very large sale has been made, or where one or more blocks have been sold in building lots. An agent who sells two or three pieces of property at private sale, has just as much right to have his sales quoted and puffed as an agent who sells two or three parcels at auction. We can the more freely speak of this subject, because we have never used *The Circular* to notice sales made by ourselves. We quote *all* interesting sales alike, without saying who made them.

WHO IS INVESTING MOST MONEY HERE.—The Oregon Railway and Navigation Company last month invested $350,000 in San Francisco real estate and wharves. The same company also lately purchased, for $175,000, a railroad twenty miles in length, from Seattle to the Seattle Coal Company's mines. It is understood that this same Oregon company has taken a refusal of the said mines and a number of ships at $600,000. As we last month stated, some of the men who own the Central and are building the Southern Pacific Railroad, have lately invested about $2,000,000 in real estate in this city, and have or are about investing over a million more in new cable railroads for our streets. If the investment of money by such men and companies is a sign that San Francisco is going to retrograde, then the shrewdness for which these investors have been long remarkable has evidently departed from them.

THE TURK-STREET CABLE LINE.—Since the Geary-street cable road was built, the Turk-street horse-car line has been nearly deserted by passengers. People who live on Ellis, Eddy, Turk, and even Tyler, prefer walking to Geary street rather than traveling on the slow and antiquated Turk-street line. This line is not now being operated at an actual loss probably, but it is certainly making very small profits. Its owners recognize this fact, and they propose to extend it to First avenue and the Park, turning it into a cable line. That it would then be one of the best paying roads in the city we do not doubt. It would run between the Catholic, Masonic, and Odd Fellows' Cemeteries, and would therefore carry practically all the cemetery travel. It would also be a direct road to the Park, without any branch, Turk being only three blocks, of 275 feet each, from the Park gate, at First avenue. The Supervisors have been petitioned to open Turk street to its full width through Jefferson square, so as to have no impediment in the way of a cable line. The petition should be granted, we think. This Turk-street cable line would be of great value to the Western Addition, and we hope it will be built. The parties who own it also own the Geary-street road. They are in earnest, we judge. One point especially leads us to think so—by turning the Turk-street line into a cable road they will make a now unprofitable road pay, and they will head off the proposed cable line on Ellis street. With a line on Geary, Turk, and Haight, there will be no more openings for any other cable line between Geary and Haight for many years to come.

A MOVE TO ENLARGE THE ELEPHANT.—The curse of taxpayers is the new City Hall. It has already cost $3,500,000, and if run in future as it now is by demagogues and politicians, to make easy places for hangers-on, it will cost at least $9,000,000. Mayor Kalloch announces that a bill is about to be introduced in the Legislature to have *all* the work on our municipal elephant done by the day instead of under contract and with public competition. If this move succeeds, two things will result. The building will not be completed in less than twenty years, and an army of sponges will be placed in do-nothing situations at the public expense, who will be as completely used against taxpayers and good city government as though they were publicly placed in office to destroy both. Any man who votes for this day's work business in the Legislature will brand himself a demagogue, and will forever after be marked as such by all honest men and taxpayers.

Market Report.

GLASS.—The market is now well supplied. Prices rule lower, both in New York and at home.

PAINTS.—The statistics of the past year prove that California is "looming up" in the manufacture of this important article. The demand, as usual at this time of the year, is very light. Prices remain the same.

OILS, LINSEED.

Jewett's Raw	75
Jewett's Boiled	80
Pacific Raw	75
Pacific Boiled	80

OIL PAINTS, WHITES.

Atlantic Lead	8@8½
Jewett's Lead	8@8½
Western Lead	—@8
Pioneer Lead	7½@—
California Lead	6½@7
Domestic Lead	5@5½
Pacific Lead	4½@5
French Zinc, G. S	13@14
French Zinc, R. S	11@12
American Zinc	5@7

LUMBER.—The market is very firm. Although no change has taken place in prices up to the time of writing this article, we are well advised that before the week is out a change will be made, and the price will advance. There is only a limited quantity on hand. Demand for this season of the year is very brisk. One of the good signs of the future has been the absence of farmers and their money from Pine street and stocks. During a late visit to the country, we were informed by people who well knew what they were talking about that building operations in the country for the year 1881 would exceed those of the last two years together. Doors, blinds, and sash have an upward tendency, and the former, especially, has advanced in price.

HARDWARE.—No improvement can be looked for till the opening of the spring trade. Market is variable, but favorable to the buyer.

Imports since our last, by rail, 1305 kegs. Imports since January 1st, 1375 kegs. We note sales of 1500 kegs private.

LUMBER.

We are indebted to the *S. F. Journal of Commerce* for the following very full report of receipts and exports of lumber:

Receipts since January 1st:

Lumber, feet	4,058,800
Shingles, No	1,222,500
Laths, No	565,000
Railroad Ties, No	2,450
Wood, cords	235
Staves, bundles	650
Hoop Poles, bundles	200
Hoops, bundles	337
Shakes	50,000

Total receipts for 1880:

Lumber, ft	181,961,842
Shingles, No	63,682,032
Laths, No	16,670,800
Wood, cds	22,315
Piles, ft	63,000
" No	4,914
Cedar, logs	4,364
" ft	72,980
Rosewood, logs	32
Shakes	1,806,625
Pickets, No	120,000
Hoops, bdls	8,353
Headings, bdls	491
Staves	14,799
" bdls	6,020
" cds	23
Railroad Ties	327,591
Posts	386,983
Sugar Pine, ft	2,598,000
Barrel St'k, pkgs	27,664
Spars	100
Wool Slats	74,000
Stave-bolts	78,000
" cds	577
Telegraph Poles	1,508
Ship-knees	391

There is a pretty good demand at present for lumber, at firm prices. The market is in a good state, with a light stock and an increasing demand.

Exports of Lumber since January 1st:

		Feet.	Value.
Jan. 3	P N Blanchard, Qu'tn	17,000	$340 00
3	Valiant, Queenstown	24,000	480 00
3	Anna, do	13,000	260 00
3	Triton, do	9,000	180 00
4	Isle of Bute, do	12,000	252 00
4	Granada, Panama	21,585	446 79
5	Geo. G. Trufant, Queen'tn.	25,000	500 00
5	Allahrbad, do	12,000	240 00
6	Newbern, Mexico	13,796	382 78
6	St. Jean Baptiste Queen'tn.	8,000	160 00
6	Mary Emily, do	7,500	150 00
7	Belle of Arvon, do	8,000	160 00
7	Western Belle, Liverpool	8,000	160 00
8	Iron Queen, do	12,000	240 00
8	Parthia, Antwerp	20,000	400 00
8	Patterdale, Cork	11,500	230 00
	Total	222,981	$4,581 57

We quote cargo rates: Pine—Rough, $16 ₱ M ft.; No. 1 Flooring and Stepping, $24.50. Redwood—Rough, $16; Surfaced, $23. Retail rates: Pine—No. 1 Flooring and Stepping, $30; Rough, $20. Redwood—Rough, $20; Surfaced, $30; No. 1 Rustic, $30; Flooring, $27.50; Tongued and Grooved Beaded, $27.50; Fancy Pickets, $20; Rough Pointed Pickets, $16; Rough Square Pickets, $14; Shingles, $2.25 ₱ M.; Laths, $3.25.

CEMENT, PLASTER, LIME, ETC.

Imports since our last: Per Merwanjee, 3,951 barrels Cement.

Total imports for 1880:

Cement, barrels	53,505
do casks	8,912
Fire-bricks	223,400
Plaster, barrels	3,200

Since January 1st: Cement, 3,951 barrels.

Receipts of California Lime since Jan. 1st: 1,820 barrels. Total for 1880, 133,077 barrels.

We quote Eastern Cement, Rosendale, $2.25@2.50; other $2.12½; Portland Cement, $3.75@4.50, as to quality and brands. Plaster—Eastern, $3.25@3.50; do. Golden Gate, $2.75@3.00. Lime—Santa Cruz and Sacramento, $—@1.50. Fire-bricks—35@40, jobbing at $40@50, as to brand. California. Brick—Hard, $10@12; Soft, $7@8; Red, $9@10.

Building Intelligence.

We would refer our readers to another article in this issue, viz., Building Improvements. The outlook for this season of the year is better than at any similar period for the last three years. Both in the city and country, the amount of work in contemplation is such as to gladden the hearts of all our mechanics and material-men. The immense depots at "*our*" end of the wharf on the Oakland side of the bay will give employment to a small army of men. Although well informed in regard to this work, we are not at liberty to give the particulars. **We again urge upon all our country friends the necessity of supplying us with a true statement of all building operations in their respective districts.** The report for San Francisco is a very full one, and can be relied upon as correct, as our information comes direct from those most interested.

SAN FRANCISCO.

Two frame houses on Post street, west of Franklin. Owner, C. S. Peck. Architects, Curlett & Eisen; contractor, D. Perry. Cost, $12,000.

One two-story dwelling corner of California and Laguna. Owner, B. ——. Ridding. Architects, Curlett & Eisen; contractor, J. Robertson. Cost, $9,000.

Book-cases, mantle, and side-board for W. E. Brown. Architects, Curlett & Eisen; contractors, Gilbert & Moore.

Alterations of building on Tyler street, near Webster. Architects, Curlett & Eisen. Day's work. Cost, $1,200.

Six two-story dwellings on southeast corner Bush and Buchanan. Owner, H. Hinkle, 2119 Webster street. Day's work. Cost, about $5,000 each.

Two-story frame on Pine street between Fillmore and Webster. Owner, H. Hinkle, 2119 Webster. Day's work. Cost, about $6,000.

Stables on Fourth street for N. B. & Mission R. R. Co. Architect, A. Laver. Day's work. Cost, about $4,000.

Frame building on Fourth street between Brannan and Townsend. Owner, Vermeil & Wellington, 608 Fourth street. Contractor, Wm. Pratt. Cost, about $2,500.

One-story frame building on Fourth street, north of Harrison. Owner, H. Lilienthal, 322 Sixth street. Contractor, T. J. Hamilton. Cost, about $400.

Fruit canning establishment on Brannan street between Third and Fourth. Size, 120x225 feet, with a two-story building in rear, 40x60 feet. Owner, Lusk & Co. Contractor, S. N. Harrison.

One-story cottage on Baker street between Bush and Pine. Owner, D. J. Sullivan, at *Alta* office. Architect, T. J. Welch; contractor, ——. Cost, $850.

One-story cottage on Butte avenue between 24th and 25th. Owner, Jacob Sullivan, 8 Folsom avenue. Architect, T. J. Welch; contractor, Peter McMahon. Cost, $1,100.

Two-story frame dwelling on Jackson street between Buchanan and Webster. Owner, Mrs. Horn. Architect, C. Geddes; contractors, Waterbury & Maxwell. Cost, about $2,500.

Alterations of Enterprise Brewery, 2019 Folsom street. Owner, Hillebrandt & Co. Contractor, —— Hueve. Cost, about $500.

One-story house for butcher shop, corner of Webster and Jackson. Owner, Mrs. Gould. Contractor, John Blake. Cost, about $2,000.

Two-story frame building on Mission between 15th and 16th. Owner, H. Nathan, Mission street between 11th and 12th. Contractor, A. Zihn. Cost, about $1,700.

Two-story frame dwelling on Jackson street between Webster and Fillmore. Owner and builder, J. P. Shepherd. Cost, about $4,500.

Two-story and basement near corner of Tyler and Buchanan. Owner, C. H. Wetherbee, (Corporation Yard.) Contractor, R. Brotherton. Cost, about $3,500.

Rearrangement of Lick House billiard-room. Architects, Wright & Sanders; contractor, Thos. Moffett. Cost, $2,600.

Small brick building on Seventh street, north of Mission street. Owner, —— Dumas. Cost, ——

Four cottages, four rooms each, at Black Point, opposite Schultz & Von Bargen's Distillery. Contractor, J. Scheerer. Cost, $3,500.

Alterations of house on Rincon place. Owner, —— Frei. Architects, Hoffman & Curtiss; contractor, J. Scheerer. Cost, $2,600.

Two-story 20-class room school house on Harrison street between 4th and 5th. Owner, City of San Francisco. Architects, Curlett & Eisen; contractors, Moore Bros. Cost, $34,600.

OAKLAND.

Two-story building on corner of 12th and Washington streets. Stores on first floor, and upper story to be used as an armory. Contractor, McKillican. Cost, ——

ALAMEDA.

Mr. J. B. Wattles' residence on Santa Clara avenue is being raised, and a new wing added, 18x50 feet.

BERKELEY.

Two two-story and basement frame buildings on corner of Ellsworth and Channingway streets. Owners, B. H. Upham and A. F. Gunn. Architects, Hoffman & Curtiss. Builders, Berkeley Building Union.

HEALDSBURG.

Two-story and basement brick building to be used as a flour mill. Owner, S. Soules. Contractors, Hall & Miser.

MENLO PARK.

Fountain at residence of J. C. Flood. Brick work by R. Mitchell. Architect, A. Laver. Day's work. Cost, $1,000.

Gas works at residence of J. C. Flood. Architect, A. Laver; contractor, Worrell. Cost, ——

SAN RAFAEL.

Ornamental bridge on the grounds of Seth Cook. Architect, A. Laver; contractors, D. Sheerin and Charles H. Ackerson. Cost, $2,500.

Ornamental boundary iron fence for Seth Cook. Architect, A. Laver; contractor, J. R. Sims. Cost, $1,070.

Dwelling near the Court House for W. H. Sears, State Senator. Contractor, W. H. Wharff. Cost, $6,500.

VALLEJO.

Two-story frame school house, with basement, for Good Templars' Orphan Home. Contractors, Carle & Croly. Cost, $3,947.

The California Architect and Building Review.

VOLUME II. NUMBER 2. } SAN FRANCISCO, FEBRUARY, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect
AND
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

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Royal Institute of British Architects.

We have received an important issue of the *Proceedings of the Royal Institute of British Architects*, containing the regulations which have been drawn up and approved by the Council for the compulsory examination, which all candidates for membership in that body will, after May, 1882, be required to have passed before they can be proposed for election. The regulations are drawn up with great care, and the examinations, although it is not intended to make the test severe at first, will probably be thorough. To save time and trouble, each candidate is obliged, in applying for admission to the examination, to submit plans, elevations and sections of a building designed by himself, with one sheet of details, a perspective drawing, and a sketch of some ornament, from the round. These drawings must be properly authenticated, and as a guarantee of good faith on the part of the applicant, he is obliged to deposit a fee of three guineas. A glance at this "probationary work" is sufficient to determine whether the candidate is fitted for further examination. If not, his fee is returned to him, and he is excluded from the subsequent trials, which are intended as tests of proficiency both in the theory and the practice of architecture, and occupy four days. The first day is devoted to a written examination on the history of the art, to be illustrated by sketches; the second to materials and construction; the third to professional practice, in which the candidate is required to make plans, specifications and estimates in accordance with a given programme. The fourth day is occupied with an oral examination covering the same ground as the previous work. Those who answer correctly a given proportion of the questions are eligible for Associates of the Institute, and if elected within eighteen months after passing the examination, their deposit of three guineas is credited as their entrance fee.—*American Architect.*

Inflating Real Conditions.

The *Evening Bulletin* seems to have lost all control over its eagerness to create the impression that *wonderful* activity in real estate and building matters exist in San Francisco. Persons at a distance, or not well informed in reference to the actual state of affairs, would be led to the conclusion, by reading an article in the columns of that journal, published on or about the 4th inst., that this city was in a glow of grand prosperity, and that brilliant times were upon us. While there were some facts of pleasing truthfulness in the article in question, the coloring was altogether too strong, and had the appearance of being "written up" by some one financially interested in the result—the creation of a "boom" in such matters—or by one who received full and ample compensation for the profuseness of his statements.

Mr. Magee, publisher of the *Real Estate Circular*, is admitted to be as thoroughly informed upon real estate matters as any person in this city, yet the tenor of his February issue contradicts the overwrought statements of the evening journal mentioned, and says, that "*January was one of the dullest months we have had to chronicle for a long time.*" And we also fully understand and know that the same month has been one of as great dullness among architects as has been experienced during the preceding six months.

It is not that we desire to raise issues with the *Bulletin*, but because we believe that all exaggerations, having the effect of producing impressions unsustained by actual facts, while they may create a present advancing movement, soon fail, from lack of sound and permanent sustainments; and we believe that more good can be accomplished by prudent and accurate statements, than by immoderate and inflated representations.

During the past few months the same type of articles have appeared in the journal named, and yet we find real estate and building movements only moderately active; that is, more so than has been vouchsafed to this city during the three years succeeding 1879; but at no time as yet has there been, nor is there now, any "*rush*" for real estate, nor in building improvements.

The general feeling, however, is good; and it is believed and hoped, that with the commencement of the spring or early summer months, every mechanic desiring work will find employment at fair wages; and it is by no means certain that the demand for labor will not exceed the supply.

The *Lancet* announces that "the Aromatic and deodorizing water-closet" has been patented and put on the market in England. "Aromatic" is pretty good, but not hard to beat. One of our subscribers is now perfecting a "Koproeuodmotikion," with balm of a thousand flowers attachment, which will entirely destroy the sale of the Aromatic Closet in this country.

The Psophokeodaleundron is also proposed as a substitute for the ordinary closet-trap, and will undoubtedly be a success, if eau de cologne can be obtained at a sufficiently low price.—*Sanitary Engineer.*

Sound Doctrine.

No fair-minded person will dispute the right of others to enjoy the advantages and benefits of things produced by them, whether the product of hand or brain. And the laws of the land provide protection against the invasion of rights acquired by those who created and perfected original conceptions. The fact that such laws are enacted, establishes this doctrine of rights, as all law is presumedly and professedly for the establishment and protection of the right in all things, and against wrongs in every form. And that which is right in law is equally so in a moral sense. And those who perpetrate wrongs because not restrained by legal penalties, are no less guilty, in a moral sense, than those who wantonly defy the laws of the land by illegal practices.

Every invention, whether mechanical, scientific, or more specially intellectual, reaches its own magnitude from some "first conception,"—some seed, through which, by intellectual fructification, are produced other thoughts, until the growth of perfection is completed. This doctrine of right is far reaching, entering into every pursuit in life, and is by all considered a sacred heritage. Still, but very few feel bound, or are controlled by its precepts and equities, when gains and advantages offer their inducements for its violation. The disposition is almost universal, to secure any good thing that presents itself, no matter to whom it may rightfully belong, nor the character of means necessary to such possession. The Bible says that the "fool hath said in his heart there is no God," and avarice teaches—"Get all you can, and hold on to what you get," and the masses receive the latter rule as their guide. Consequently, those who possess and produce, are safe in their possessions and productions, only so far, as a rule, as the laws of the land make them secure. The application of this doctrine is broad, and equally as applicable to the rights of architects as against "PLAN STEALING" for buildings, as in any other connection.

Outlay on Sanitation in England.

The *Architect* states that during the last financial year, the expenditure of the urban sanitary authorities was £18,663,700, bringing the expenditure for five years up to about £77,000,000. The outstanding loans to the same authorities amounted to more than £56,000,000 sterling. In the past year, there was an increase in the loans of £10,407,052, or 22¼ per cent. on the amount of the loans obtained in the year before. It is assumed that the debt has been incurred mainly for reproductive works, in connection with gas and water supply, and therefore represents an apparent rather than an actual increase of the burdens of the rate-payers. The expenditure of the rural sanitary authorities last year was only £445,517; but this sum is an excess of 127.9 per cent. on the outlay of five years earlier, and the outstanding loans in the rural districts have been increased in the same period 359.9 per cent. The total loans sanctioned by Government under the Public Health Act in the ten years, 1848 to 1858, amounted to no more than three millions—a sum exceeded by one loan to Manchester last year on account of water-works.—*Sanitary Engineer.*

NOT long since, in an arbitration case, an engineer was thus examined as to his professional experience and capacity, so called: "How long have you been in the profession?" "Twelve years." "Are you thoroughly acquainted with your work, theoretically and practically?" "Yes." "Do you feel competent to undertake large constructions?" "Yes, most certainly." "In what engineering works have you been engaged during the last twelve years?" "The manufacture of iron bedsteads."

We fear that many professed first-class plumbers would make similar irrelevant replies, if they were subjected to a test as to their capacity.—*Sanitary Engineer.*

A Providential Tax.

It is said that Providence sends the "early and the later rains." At any rate, the rains come, and often in such quantities as to fully demonstrate the fact that those who defined the present street grades of San Francisco did not comprehend the situation, and by their lack of good engineering judgment and intelligence, have imposed a tax upon the general business transacted east of Battery street, etc., amounting to a large sum annually, by the flooding of cellars, and damage to goods and merchandise. In many instances the losses from these causes amount to as much or more, than the yearly city and state tax upon the premises flooded. The extent of damage occasioned by every "hard rain," is large; and yet there is no remedy, except at enormous cost and outlay. If we recollect rightly, the "Hoadley grade," which was changed by a "Board of Civil Engineers," in the early days of the city's history, placed the grade of Montgomery street eight feet above its present depressed level. Had Mr. Hoadley's, instead of the intelligent (?) Board's, grade been adhered to, hundreds of thousands of dollars would have been saved to the business community, operating in the section of city most affected. But as it is, this flooding will be repeated every year, to greater or less extent, according to the quantity of rain falling during respective wet seasons; and this annual tax will be continued for all time, unless cellars of even six-feet depth are abandoned. Think of it, in a city, where its central point rises over three hundred feet above the bay within ten blocks from the water, the cellars of heavy business houses within six or seven blocks of the higher altitude, to be flooded by every heavy rain that falls!

"Smart Tricks."

With all that may be said about the tremendous developments of the nineteenth century, the fact cannot be denied that "trickery," in its fullest acceptation, has kept pace with the enlightenments and advancements in their multiplied forms. The spirit of artifice, stratagem, cunning devices, and bold scheming to obtain advantages, has gathered inspiration and strength from the more generous spirit of progression, until it has grown into a common sentiment, that those who fail to attract special attention by some "brilliant act," of what is termed "smartness," are merely common people, entitled to no special notice. The fact that a higher sense of right restrains in the one case, and a reckless and abandoned disposition controls in the other, neither brings credit to the one, nor shame and condemnation to the other. Consequently, it is practically confessed that "trickery" is a legitimate motive in men's action, and those who play their tricks most shrewdly and cunningly, are more applauded by the masses, and condemned but by few.

It is presumable that Satan considered it a "smart trick" upon the Almighty, when he induced Mother Eve to eat the forbidden fruit, by which the human race has ever since been deprived of the shades and sunshines of Paradise, and been doomed to the sorrow and sufferings which have flooded the world. Whether the genius of the "fiery realms" comprehended the effect that this first "trick" would exercise upon the happiness of the human family for all time, or the extent of influence that would follow, is not stated in the records. But it is nevertheless true, that millions of the human race have been governed by the spirit of that example, and by deceitful representations, falsehoods, and "smart tricks," secured to themselves wealth and fame. For, as a rule, wealth is the weapon which, even in the hands of bad men, beats down and overpowers all opposition; and the glittering robes of riches too generally hide the blackest deeds of men, and unlocks doors firmly secured against honest and honorable men, whose purses are unfilled with shining gold. The sons of Jacob, we are told, were delighted with the "trick" played upon their father, when they sold their younger brother into Egyptian bondage; and they cared not that their lie stung the old patriarch's heart, and caused his feeble frame to tremble with grief.

The son of David, in his eager ambition to steal his father's crown, planned well the "trick" by which he hoped to reach the throne of Israel; but the power which sometimes thwarts the devices of those who conceive devilish designs, gave the example to the world, that severe judgments are not impossible, even with the smartest and shrewdest of mankind.

But the record of "trickery" is not confined to sacred history, but has been a conspicuous practice with all the generations of men, from the day when Mother Eve was "tricked" into the necessity of taking herself to fig-leaf dress-making, down to the present hour; with this simple difference, that as burglary, forgery, and other similar operations, have been reduced to a science by practice, and men so inclined have studied and perfected themselves in the most successful means of robbery and stealing; so with the other—not much better class—who "lay for chances," and watch for opportunities to secure property and valuables, rightfully belonging to others, without pay, or valuable consideration. Nor is the spirit of "trickery" confined to those who reach only for large results, but is found in all the lesser spheres of operation, from the "tricky" horse-jockey and mock-auctionfraud, all the way up to where the low and high currents meet.

Nor is the building interest by any means exempt from this demoralizing and dishonorable practice—the doing of some mean thing, generally in a sly and covert manner, for the purposes of unjust gains. A majority of those who enter into contract obligations study and devise means, the object of which is to secure more than fair and rightful advantages; and neither absolute "trickery," nor willful, recognized dishonesty, assumes objectionable features, so that the end proposed is accomplished. The incidents which might be named in illustration would more than fill the entire pages of this journal, and we therefore name only a few.

We know of no class of operations in which all the operators are square, upright, and honest men; nor is there any honorable pursuit in life in which there are no conscientious and fair-dealing parties engaged. But, unfortunately, the baser class is the more conspicuous, and public opinion and judgment form conclusions from the doings of the more prominent characters. Hence, the better classes in all pursuits, whether mechanical, professional, commercial, or otherwise, are more or less surrounded by the odium created by the acts of the unworthy, and good men are sometimes mistrusted and misjudged, because "tricksters" have debased public sentiment in nearly every pursuit in human life, and assisted in breaking down the confidence and respect of the employer for the employed.

The term "tricky rascal" is of frequent application, and generally deserved by those to whom applied; for, notwithstanding unjust judgments of others are of common occurrence, it seldom fails of correctness. When a man wins the reputation of "trickster," it is a moral defect, which, while it may deprive those habituated to its practice of the esteem and confidence of others, it seldom raises a barrier to social intercourse. Hence, it is often remarked, "He is a good fellow, but as tricky as ——" as a monkey, if you please.

"Trickery" in connection with house-building assumes a variety of shapes and forms. We have known chimney-builders to intentionally lodge pieces of boards, bricks, and mortar in flues, so as to entirely shut off all vent, and enjoy the anticipated result of their "trick." The story is told of a contractor in this city, who filled a truck with empty barrels, and procured dust from one of the out-town adobe roads, spreading brown paper, such as is used in packing cement, and then carting the load to the place of his building operations, and palming the adobe dust off as A 1 Rosendale cement. Numerous instances have occurred in this city, where A and B lead pipe have been called for by the specifications for various purposes, and the *honest mechanics!* have run E pipe instead, shielding their "smart trick" by soldering short pieces of the required weight of pipe on exposed ends. We fail to discern the moral difference between stealing a man's money direct from his safe or drawer and obtaining it by fraudulent workmanship and materials. The practice of soldering trap screws on bent-lead traps, without puncturing the pipe, is another *small* trick frequently perpetrated. The running of ½-inch where ¾-inch pipe is called for, using 4-pound lead pipes where 6-pound is specified for soil pipes, No. 8 or 10 zinc where No. 12 is demanded, and various other fraudulent "tricks" are common in plumbing work, working more or less of discredit upon all parties engaged in plumbing pursuits. And those workers in wood, who in laying tongue-nailed floors, deem themselves exceeding shrewd in nailing the edges into each and every joist when the eyes of interested parties are upon them, and when no one is watching them, omit one-fourth, or perhaps one-third, the proper number of nails: this practice is widespread, and the concealed and sneaking manner of its observance brands those who indulge in it with deliberate and premeditated purposes to do a wrong and mean thing; for men never seek concealment for right and proper acts, but seek to hide and disguise those things which they themselves recognize as wrong. The trick of puncturing holes in floors, rustic, etc., etc., with nail-sets, to make it appear that nails have been driven, is another of the "smart tricks" sometimes resorted to. And contractors who supply inferior qualities of materials, and "SWEAR TO GOD," with uplifted hand, that they are No. 1, knowing at the same time that the assertion is false, consider the "trick" of moral, if not legal, perjury as smart, by which they cheat and defraud those with whom they have pledged their honor by written obligation, to "faithfully do and perform" the requirements of the contract. And painters who agree to use only the best qualities of white lead and pure linseed oil in their paint mixtures, think themselves surpassingly smart when they substitute base adulterations for the materials promised to be used, and deem it a "neat trick" of deception to play the rogue by the use of the contents of *slushtubs* and other studied and preconcerted devices practiced to impose upon and defraud those who, in good faith, have joined confidence with them by contract.

The "trick" which has most stimulated the spirit of trickery in a thousand small ways has been that greater one of original contractors preconcerting plans and methods of robbery. These are of two classes, the first being those who figure unwisely, and *engage* to execute contracts for less sums than is sufficient to pay the actual costs and outlays. Such undertakings almost always terminate with losses to material-men and others, and poverty of profits to the contracting party. And the fact that no intention was entertained in the premises to inflict loss upon any one, is no sufficient satisfaction to those compelled to sustain losses. In all such cases, creditors may be denominated as "tricked" into losses by mistaken confidence in the judgment and mechanical abilities of the original party. The second class are those who deliberately arrange, plan, and mature matters, so that they can retain a considerable portion of the sum of the contract, without any intent to pay out a single dollar more than they are compelled to. Every conceivable "trick" of misstatement and falsehood is resorted to, and in thousands of such cases, acts of the most glaring dishonesty are practiced, with the intent and for the purpose of cheating and defrauding; and it is this class of men who have brought discredit upon mechanical and contracting operations.

Among the meanest of all "tricks" practiced, is that of—we hope but few—material-men who dare to admit and say, that with a good lien law in force, they as willingly sell materials to the "meanest scrub" as to good men, because such a law insures the payment of all bills, and in selling to the worthless kind, there is greater opportunity to add quantities not delivered, and larger profits can, as a rule, be made out of the reckless and unbusiness-like than is possible with honest, square-dealing men, who are careful and watchful in their purchases and transactions generally.

But substitutions of lesser for the better and specified qualities and quantities are conspicuous in all the branches, and cheating by "tricks of trade" has so far become a virtue that but few men who are "terribly" punctilious upon points of honor and integrity in matters generally, hesitate to practice dishonorable "tricks," which increase profits to themselves; while in the very manner and method of playing such tricks, they confess their own disgrace, in the concealments not required in square dealings.

We hope in time, through these columns, so to expose and condemn the many well-known irregularities, as to—in part, at least—relieve honorable mechanics and mechanical operations of the stigmas resting upon them, through the various species of trickery so generally practiced. It is to be regretted that the sons of toil of the present day should have allowed their respective pursuits to degenerate in integrity, or that they should have abandoned the virtues of their sires and grandsires, who prided themselves in their mechanical undertakings, and won the once-honored name of "honest mechanics." There is no good reason why a sense of integrity should not control men in all their actions, and the departure from the right rule has no excuse, except the base one of impure purposes and corrupt motives. It is both more pleasant and substantially profitable to pursue the right, as the right ennobles and elevates, while the opposite is the outgrowth of mental and moral depravity, and like physical diseases, if permitted to run on unchecked, simply increases in malignity until moral life ceases to exist.

Mechanics' Lien Law.

The Lien Law of California, as it stands upon the statute book, holds owners responsible for all liabilities created by contractors, in the erection of improvements upon real estate, even after the full amount of contract money shall have been paid. The wisdom, equity and justice of such an enactment, is contended for and questioned by the respective parties in interest; and moneyed interests in all cases control and shape the judgment of those the more directly interested. Consequently, those who furnish materials, or perform labor upon contract work, realize a necessity for some *special legal protection*, which will shield them from losses under any and all contingencies and circumstances. Self-protection is a fundamental law of our very natures, manifesting itself every hour of life, in some more or less conspicuous form. We seek protection alike from scorching suns, and raging storms; from harmful accidents and dangerous happenings. Parental care and protection gives courage to infant and childhood hearts, and wholesome laws afford the influence of their protection to every man engaged in business pursuits of whatsoever character.

But protections which are afforded by imperiling and jeopardizing the interests of others, are, and must remain, of disputed propriety. The law of contract has been held for all time, as complete and absolute, permitting no supplanting, invalidating, or impairing considerations; and the masses can never be reconciled to any doctrine or theory of law which can encroach upon contract stipulations and obligations.

The matter of Mechanics' Lien Laws has, however, engaged the attention of State Senates and Legislatures for generations, without, as yet, any admittedly perfect enactment being reached; for the very self-evident reason, that to bind a first party to a third, for the acts of a second party, without any participation by the first in the acts of the second, mixes up the common and reasonable equities of the matter to such an extent, as to render it difficult to avoid injustice to those sought to be held for transactions over which they have had no jurisdiction.

The entire difficulties of the case find origin in the corrupt and debased condition of things in connection with contract operations. Virtue and integrity are too much held subservient to personal interests; and the rule prevails, that when men can make more money by cheating, swindling, and defrauding, they play the rogue, rather than miss the opportunity to gather in larger amounts of gold and silver, by observing correct and honest rules of business. This leads to studied villainies; to the concealment or wrong application of moneys received, and rightfully belonging to others; to falsifying and deceit in a thousand forms, for the purpose of retaining that which is not rightfully owned or possessed, all of which stimulates business dishonesty, and emboldens those who may have made success of one or more such efforts, to attempt repetitions and enlarge upon previous successes, until *really honest* and upright men, in contracting operations, are the exceptions.

The great want is, a purification and elevation of general business systems and principles, and the establishment of such rules of trade and commerce as would forever debar from future confidence those who, under any pretense, wavered from the strictly right in all things. There are two natural principles involved in these considerations: first, laxity of moral rectitude in business life, is the "headwater" of the great stream of corruption which flows down the channels of general business operations, terminating in the shoreless ocean of dishonesty—shoreless, because the spirit of dishonesty, whenever and wherever permitted to enter, laughs at all restraints, and is held within no human bounds, except, perhaps, to some extent, the iron bars of prison cells. It is sneaking, soulless, selfish, and unmerciful, and has cost the world billions of billions of money in its detection and punishment; and it is because this spirit of dishonesty is tolerated, and practically countenanced, that the necessity of protecting laws exists.

On the other hand, even a *severer* exaction of integrity, truth, and honesty in all things, would tend to purify and elevate; and if strictly enforced in all business relationships, those disposed to perpetrate wrongs would be forced to retire into that seclusion which would exclude them from all opportunities to practice their evil designs, and so leave honest men to deal with each other as such, alone upon the protection assured by the personal honesty and integrity of heart and purpose.

We recognize the impossibility of enforcing the suggestions made in this article, because the corrupt and demoralizing feature of the case has gained too strong a position in business affairs; and the attempt *at once* to eradicate them, would prove abortive; still the doctrine is correct, and all classes of business would be materially benefited if the better rule could be incorporated as an everlasting principle.

The Late Rain.

The rains for the season of 1880–81 commenced late, but within the past thirty days have more than made up for the delay of commencement. Reviewing the matter from a human and individual standpoint, there was decidedly too much concentrated within the period of one week; enough indeed for six weeks, regularly distributed. The only special effect that this over-abundant outpouring from the clouds has had upon San Francisco, has been the thorough cleansing of our street sewers, the caving in of a considerable number of them, and the flooding of cellars, particularly in the principal business portions of the city, together with incidental damages in various quarters, from leaky roofs, etc. But in other parts of the State, particularly along the inland rivers, the damages by overflows have been large, and thousands of acres which, with gentle showers and moderate rain, would have "yielded abundantly" of golden grain, will produce nothing this year. In addition to this, large areas, which would have added largely to our berry, fruit, and vegetable crops, have been so far ruined, for the present at least, as to cut out their proportion of annual supply. The submersion of the Sacramento and San Joaquin river islands has caused heavy losses to those interested, among whom are many whose all depended upon freedom from the calamity of an overflow of their lands. Many are "ruined" by the overflowing, but while great loss been occasioned to a considerable number, the pleasing feature exists of the absence of any considerable cry for help in any direction, and, as far as we can learn or judge, the damages of the past will soon be repaired.

Architects' Society—Report of Proceedings of First Meeting.

On the 20th ult., a goodly number of the architects of this city and Oakland met in the Mechanics' Institute building, to consider and discuss the matter of organizing a society in the interest of the profession.

On motion of Mr. John Wright, Mr. Laver was chosen temporary Chairman, who, upon assuming the Chair, briefly stated the object of the meeting, after which James E. Wolfe was appointed temporary Secretary.

There were present, Messrs. Augustus Laver, John Wright, P. J. O'Connor, D. Farquharson, William Curlett, John A. Remer, John Marquis, G. C. Meeker, H. D. Mitchell, T. A. Eisen, T. J. Welsh, B. E. Henrickson, C. A. Bordwell, Joseph Gosling, H. T. Bestor, W. T. Moore, H. C. Macy, J. B. Whittemore, John M. Curtis, F. B. Hamilton, P. Portois, L. R. Townsend, W. Winterhalter, H. Geilfuss, J. E. Wolfe and George H. Wolfe. Oakland—Seth Babson, W. Kirk, Chas. Mau, and Wm. Stokes. Stockton—George W. Percy.

Upon motion of Mr. P. J. O'Connor, a committee of three was appointed, consisting of Messrs. O'Connor, Wright and Welsh, to communicate with the Secretary of the *American Institute of Architects*, for the purpose of obtaining all available information necessary to the formation of a Chapter of the Institute in California.

An irregular discussion of matters was indulged in by several of the gentlemen present, which terminated in the adoption of a motion by Mr. Welsh, seconded by Mr. Curlett, "that it is the sense of this meeting that we organize as a Chapter of the American Institute of Architects.

The appointment of a Committee to prepare and report a Code of By-Laws for the government of the organization, was deferred until the Committee on Correspondence make their report and present documents and information necessary for intelligent action in reference to rules of government.

The meeting then adjourned, subject to a call of the chairman.

We are authorized to state that Mr. Laver has personally received sufficient documents and instructions from the East to complete the organization at an early day. But as the Committee on Correspondence have attended to their duties, and will in due time receive the necessary papers and information, a call for the second meeting is deferred until the Committee is prepared to report.

We were greatly pleased to see so many prominent architects respond to the call for the preliminary meeting, for the purpose of organizing a society in the interest of the profession. It was the more gratifying, because for so many years the profession, as such, has been allowed to run wild, with no protecting influences to preserve it from the decay which, in the very nature of things, always attaches to neglected interests. When harmonies exist, and have continued to exist, there is but little difficulty in enlarging and strengthening them; but when discordant or dormant influences prevail, the task of uniting and combining is not an easy matter. However little of intercourse there may be between men in private social life, there is no good reason why, in their business and professional career, they should not practice honorable consideration for each other, and seek to establish, in their common business interest, rules, customs and practices calculated to win honorable advantages for all. And now that the architects of this city and Oakland have begun to rebuild the somewhat broken-down walls of professional esteem for each other, the greater the respect of clients and the community generally, and fellow-architects in other parts of the country, will naturally follow; and by unity and co-operation, it will not be long ere the architectural profession on this coast will assume the position merited by its true character and responsibilities.

If there shall be some, as may be expected, who will draw themselves away from the beneficial influence of the organization, that fact should not deter the good and worthy from still nearer professional and personal affiliations. And if but a fractional part of the whole number can unite in common, generous understandings, let it be so, and let the union be sustained. It can scarcely be expected that among so large a number of men, there will be none to refuse their identification in a departure from that which has existed for so many years. It would, however, be a shameful acknowledgment of weakness and incapacity, to admit that a sufficient number of gentlemen pursuing so reputable and honorable a calling as that of architecture, cannot combine in a worthy determination to secure the benefits of a sound and solid organization; and humiliating in the extreme to realize, should such failure occur, that men who aspire to no higher distinction than proficiency with the pick, shovel, and hod, possessing none of the advantages of education, are able to sustain and perpetuate society relationships.

In behalf of the noble science professed, we urge that the architects of the entire coast practically illustrate not only their capacity, but their fixed determination to establish a society compact of a high order; in doing which they will draw around themselves advantages which cannot be otherwise attained, and secure ten-fold greater confidence and respect from clients, and elevate the profession to its inherent dignity.

But this must be learned—that moderation and mature judgment is necessary to harmonious action, and that without these, discord is sure to destroy the good work so favorably commenced. The enthusiastic and earnest men must moderate and temper their zeal and determination to "carry points." It is sufficient that each present and urge his views and opinions with all right and reasonable earnestness, beyond which none should seek to go. And the younger members will lose nothing

by heeding the counsels of those who enjoy the advantages of greater experiences. This difficulty will of necessity have to be encountered, particularly in the preliminary movements—that every man who has really *qualified* himself for the practice of architecture has done so by the independent exercise of his intellect and self-reliance, which naturally inspires a sense of personal confidence; and sometimes a little over-estimating of one's self creeps in, and unless the mind is well balanced, and trained to yielding when it is wise to do so, indiscreet words and acts are apt to follow. Perfected knowledge is not possessed by any; yet those who have longest contended with the sharp-cornered matters of life should be the best qualified to trim them. Perhaps we are a little too sensitive upon the point of fear that in honest striving for conceived best results, something may occur which will disturb the harmonious co-operation of all, and so prevent the organization of a society, which, if nurtured by wise counsel and unselfish purposes on the part of its members, must become a power for good to the profession. And to the advice kindly volunteered to the younger, we also suggest to the older members the necessity for the exercise of sound judgment and wise and prudent example, to the end that those who have permitted so many years to pass, without providing the advantages for themselves sought to be obtained by the present movement, may secure them in perfectness and beauty before the labors of life shall be completed. Let all bear in mind that none are so wise as to preclude the acquisition of still greater knowledge. Those who have reached that condition of life where there is neither advancement nor progression, have arrived at the stand-still period of their existence, where the withering and decay of the mental faculties begin.

Competitions and Low Figuring.

Competition controlled by discriminating judgment, based upon the true value of things estimated upon leads to no bad results; while indiscriminate and reckless figuring works evil to all parties concerned in nine out of every ten cases. The innumerable instances of failures by contractors have been brought about by the far too prevailing disposition on the part of competitors themselves to secure contracts, with no right and proper consideration of the cost of materials and labor required to enable fair fulfillment of the obligations involved by such contracts.

In this regard contractors have been widely at fault in San Francisco, not only in failing to protect their own interests by intelligent and safe estimates, but also in the course sometimes pursued, of seeking to shield or excuse errors and mistakes by casting reproaches upon owners and those exercising control over the work contracted for; all of which is radically wrong in every sense, with tendencies to still greater demoralization: for the law of competition is inevitable, securing prosperity and success to those who wisely and earnestly seek and diligently strive to attain the better; while those who practice neglects, and fail to improve opportunities for good, lose every possible advantage, and naturally sink to lesser levels in the course of time.

And thus it has worked in connection with building contractors in this city; some few good and fair men having secured the better, and placed themselves in comfortable circumstances, while the greater number have followed unwise practices, and brought losses and reproaches upon themselves, and drawn around mechanical operations the clouds of discredit. It cannot be denied that very many questionable things have occurred in this connection, mainly through the premeditated designs of the defaulting parties to secure profits through dishonorable means. Sometimes honorable-minded men make mistakes in figuring the value of work offered in competition, and thereby impose hardships upon themselves; but being controlled by business principles, such parties resort to no questionable measures to retrieve losses resulting from their own acts and unintentional errors. And if undervaluations and blunders occurred only with such men, they would be but few in number, as men of correct principles and honest motives aim for an intelligent understanding of all matters connected with their business; and if they fall into errors, such errors are purely accidental, generally resulting from haste in arriving at conclusions, press of business, or causes other than willful carelessness.

It is within the province of journals of this character to exert an influence in purifying the channels of business in the departments of operations represented in their columns, and of creating right sentiments in the minds of those engaged in the pursuits represented. This we shall seek to accomplish by earnest endeavors to impress upon those engaged in building pursuits the individual and general benefits which must accrue from the adoption of correct systems of procedure, and the seeking to be always right for the sake of being right. The theory that every man has a right to do as he pleases, is neither sound nor logical. If such theory be correct in business matters, it is equally so in any other department of human life: but the fact that laws are enacted and penalties provided for the punishment of those who sometimes do wrong things, and commit heinous offenses, proves the other fact, that men have a right to do just as they please so long as they elect to do right, and no further. Thieves and murderers, as a rule, claim the defense of right, and assume justification upon grounds theorized by them as sufficient to warrant the exercise of individual rights by them. But divine, moral, and statutory laws declare such doctrine void, and fix limits beyond which personal rights do not extend. And as the written laws define the limits of human rights, so does the unwritten law of correct principles and business integrity define bounds, beyond which no man may pass and be entitled to the good esteem of his fellow-man. And if this barrier to an honorable position in life was more scrupulously observed and enforced, there would be not a tithe of the bad things done which by toleration is at the present day common in practice among all classes.

While wrongs differ in degree and character, every wrong act, whether great or small, is still a wrong; and we hope that the time will come when men will seek the control of the spirit of right, and that those who enter into competitions will do so with right motives—governed by principles of fairness and honest purposes. For this is also true, that the more vitiated the common sentiment, the viler it will become; for that which is bad, by its very nature leads to that which is still more impure, and if continued must lead to still greater evils.

Those correctly familiar with contracting operations in San Francisco during the past twenty years, will realize the correctness of the suggestions presented in this connection. And it is questionable whether, in any city upon the face of the globe, there has been so great an extent of willful, reckless and stupid estimating as in San Francisco. It is well known that parties have from time to time bid upon work offered in competition, with the evidently preconceived purpose of perpetrating dishonest acts. In proof of this, hundreds of such men have been known to take work at prices far less than sufficient to enable them to pay their bills for materials and labor; and then, to complete their rascally designs, scheme to secure the largest payment possible, and leave for parts unknown. Others, scarcely less condemnable, stupidly assuming a knowledge not possessed, figure "ruinously low," and while they may not *intend* in the premises to be dishonest, are so in effect, so far as material-men and creditors generally are concerned. And it matters but little to those who lose money by the acts of others, whether the act preceding loss is premeditated or accidental—the *loss* in either case is the same in effect. But in addition to the two classes mentioned, equal condemnation is due to those who stultify their own judgment, and demoralize competition by recklessness and unmatured calculations, "chancing results" for the sake of being successful bidders. And the fact that such parties often carry their contracts to completion without loss to others, is not a justifying argument; as the *contract price* in one case forms a basis or criterion of estimate of cost in other cases, thus establishing a precedent for the formation of incorrect valuations by owners of property contemplating building improvements; for, if Mr. Jones happens to secure the erection of a building at a stated sum, Mr. Brown of course presumes that in the erection of a similar building, the cost to him should be no greater than that of Mr. Jones'. The fact that the contractors made mistakes in figuring the cost and value of Mr. Jones' structure, and that some one or more actually lost in coin ten or twenty per cent., is not taken into the consideration; the theory being, that "if mechanics are '*such fools*' as to take work at too low a figure, they alone are to blame," and ridicule and condemnation more than sympathy is dealt out in all such cases.

Hence contractors who submit erroneous estimates for work of any character, not only impose upon themselves hardships and loss, but assist in creating a public sentiment adverse to the best interests of others who are engaged in like operations. And just so long as men practice "close figuring" for the purpose of "catching jobs," with no proper consideration of fair and right profits upon their labors, just so long will owners of real estate avail themselves of the advantages thus presented, and laugh at the folly of men who are willing to work without pay or profit.

Continuity of Purpose.

True, indeed, is it that "a rolling stone gathers no moss," and equally true that a purpose unstable as water, changing with every shifting tide of circumstances or opinion, shall not excel. The cry with which the world is always ringing; the desire either expressed or unexpressed of every human being is "success in life." And to secure this success nothing is more needful than a continuity of purpose—a fixity of aim. Men's notions of that which constitutes success are, to be sure, strangely varied and widely different; but whether it be the amassing of a fortune or the winning of fame and position, the education of the mind or the development of the body, nothing will ever be achieved unless the purpose, the aim of the man, is clearly formed at the outset and steadfastly held to throughout all the succeeding years of struggle and strife. His life-purpose must shine before him like a signal-light, his far-distant yet attainable goal, and toward it he must press, overcoming all obstacles and allowing nothing to turn him aside. It is curious to note how such a continuity of purpose will serve as a ballast to a vacillating, and even a weak nature. If once a great desire takes possession of a man; if, heart and brain and will agreeing, he works to attain that which he desires with all the powers of his being, there can be but little doubt of the result of such efforts. Holding thus firmly to his purpose, the weak man becomes the strong, and the uncertain becomes the sure.

But the difficulty lies mainly in the fact that most men never thus fix their roving desires. They wish for the good things of life, but in a listless, aimless sort of a way. They envy those whom they see pushing onward and grasping the prize, and they call such "favored beings," "fortunate mortals," etc., seeming to attribute their successes rather to mysterious power outside of the men themselves than to the forces of that great motive power within—the will. Daily we read and hear and see the wonders achieved by a fixed purpose. Its first dawn in a man's mind may be hardly recognized by even those nearest to him; but the leaven having entered, in time it will leaven the whole lump. At first we hope. The purpose lies lost under other interests and cares; yet all the while its silent work is progressing, till gradually all else becomes subservient to it. It grows, develops, matures, until flowing out into completion we stand amazed at the mighty result, and call our friend a successful man. We need to have more sureness of belief in ourselves—more earnest devotion to our self-chosen purposes. Let others make or mar their lives as they will, hold we firmly to that which we have set before us as the thing most to be desired, and it will be strange if success does not in the end crown our efforts.—*Carpentry and Building.*

IN THE New York *Herald* of December 31st is a communication signed "Medicus," advising, "that at the end of each day's session, the schools be thoroughly fumigated, using sulphur, carbolic acid, camphor," etc. Probably about the same effect would be obtained by keeping a skunk in the basement, and stirring him up occasionally. Either plan would compel the opening of doors and windows, and the thorough aeration of the house. It is, of course, theoretically possible to open windows and aerate the rooms in the absence of a skunk; but, as a practical inducement to the average janitor to do it, a skunk has many advantages.—*Sanitary Engineer.*

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

Liability of Landlords.

The liability of landlords for defective drainage in dwellings, and the right of tenants either to obtain damages or to be released from the payment of rent, where sickness has been incurred from bad plumbing, has been recently raised in a Chicago court. A Mr. Clausen, whose family have suffered from sewer-gas poisoning, has sued his landlord for $5,000, and it is proposed to make a test case of the matter.

The condition of Mr. Clausen's house may be judged by the certificate of the builder of the wooden drain with which the house was connected, that it was put down in 1875, is 12x12 inches in the clear, was made of 2-inch plank, has no openings for ventilation anywhere, and at one time had about fifty houses connected with it. The said drain was almost level, and had not been cleaned since built. There were no traps in the house, excepting under the water-closet. Mr. Clausen's child was dangerously ill, and he paid $400 for medical attendance. It is probable that similar cases will come up frequently in the future, and it is interesting to know what legal redress the law can supply.

We recently heard of a case in New Jersey, where a house was leased last fall by a young married couple. As the dwelling had been previously occupied by the landlord himself, it was assumed to be in good order; yet, during the two months of its occupancy, the wife of the tenant has suffered from malarious symptoms. The plumber who originally did the work says that it was as bad a job as he ever knew, and pronounces the house unfit for occupancy. The lady's physician insisted upon her removing to other quarters, and upon a change being made, the malarious symptoms disappeared. Upon examination, it was found that the house was not disconnected in any way from the sewer. There were few traps on any of the fixtures, and these were dried out by the furnace heat; so that there was direct access for foul gases into every occupied room.

The landlord holds the tenant to his lease, but promises to put the premises in good order. By New Jersey law, the tenant has no other redress; it being presumed that he must satisfy himself before leasing a house that it is in good condition. The law maintains the Latin precept, *Caveat emptor*, "Let the buyer beware;" and the same principle holds good in most other States. It therefore behooves tenants in general to take warning, and not to lease or purchase any dwelling until they have proof of its healthfulness, or a covenant from their landlord that it is. When it is known that most houses are built by contract, and that in the vast majority of cases the plumbing is cheap and defective, the need of such precautions is evident.—*Sanitary Engineer.*

Ancient Works in New Mexico.

New Mexico is perhaps the most noted country in the world for research. The historian, the wealth seeker and the "curious" can here find a rich field and reward for their labor. The Abo and Gran Quivira counties are perhaps the most renowned in the Territory for research. In the former there are evidences of great volcanic eruptions which overwhelmed cities and burnt the inhabitants in ashes and lava long ages ago. It is evident that these people, who are perhaps older than the Aztecs, were a prosperous race, with not a little advance in civilization, as the Abo ruins in the Manzana Mountains indicate; also some indications of fine art; rude figures and the images of animals being found upon the interior of the walls of the structures beneath the debris.

It is evident that this non-historic race were seekers after mineral, and evidences also exist that mineral was obtained by them in paying quantities, there being the ruins of many old smelters and acres of slag found near Abo. Here mines are found with the timbers so rotten with age that great difficulty is experienced and danger incurred in going down into the old shafts, where shafts are formed.

One of our informants gave as his belief that either the flow of lava or fallen leaves and dust had filled many of the shafts up, and the sand, earth and leaves so completely covered the ground that great care is required to find them, with but one or two exceptions—the Mount of the Holy Cross—(so named) being about the only one that could be easily discovered.

One especially was found where human hands or lava or falling leaves and dust had filled it level with the earth, no shaft being discernible, and would not have been found, perhaps, had not an old trail been discovered. This was dug into, and at a depth of twelve feet a man could, in places, thrust his arm in up to the elbow between the granite walls of the mine and the earth which filled the old shaft. The mineral, unlike our White Oaks country, does not seem to outcrop, but seems to be deep in the earth, no float having been found as yet except near the shafts or around the old smelters. On the eastern slope of the Manzana Mountains no quartz has been found excepting in a very burned and blackened condition. This part of the country will perhaps yield immense mineral wealth in time, and further developments and prospecting is awaited with great interest to many.

The walls of some of the old ruins at Abo are six feet of solid stone—lime and red sand—the walls in places are yet six feet in height and in a state of perfect preservation. In the ruins are found vessels of various designs and sizes made of pottery—some representing birds and animals. Stone hammers are found here, but no indication that sharp-edged tools were used in this ancient period. In digging down in one place the remains of an old aqueduct was found, which was probably used, as in the present day by the Mexicans, for supplying the inhabitants with water.

It is thought and believed, by specimens of ore found, that gold, silver and copper were found in paying quantities. All the rock is more or less copper stained, and some of it is so much so that some of the "country" rock has run as high as 37 per cent. copper.

Surely our bright, sunny land has been enjoyed long before the Anglo-Saxon made his appearance upon the scene. The future of New Mexico can only be surmised. Every day new evidences of untold wealth are thrust upon us, and the day is not far distant when the multitudes of the East will flock to our borders and assist in the development of the greatest mineral region in the world.—*Kansas City Review.*

"Balloon-built Buildings"—How False Statements Gather Strength.

In one of its issues in November last, an evening journal, which has published a large number of erroneous statements in reference to building matters, among other things stated, in alluding to "Balloon-built" houses, in this city, that "*At the end of ten years they are old and difficult to rent.*" The intent of which *misstatement* was designed to convey the impression that the undurability and unrentable features were the result of the principle of construction employed.

In the November issue of this journal, the silliness and untruthfulness of the statement was exposed, but as errors and falsehoods are generally more conspicuous because of the extravagance necessary in their make up, and so much lighter than solid facts, they float and fly around upon the surface and become prominent. So in this case. Eastern journals have been attracted by this semi-malicious representation of what is not true, and the world is being led to suppose that "balloon-built houses" on this coast have proven a failure, while the facts in reference to them are, that the "balloon system" of construction is universal in this section of country, in the erection of frame buildings, which constitute ninety-five per cent. of the buildings erected west of the Rocky Mountains. Even the mansions of our railroad magnates—Governor Stanford, Crocker, Hopkins, and others, reaching in cost into the hundreds of thousands of dollars, beside *all* the other elegant and expensive residences of our wealthy men, are erected upon the same principle.

It is not true that there is less last and wear in buildings constructed "balloon fashion," than when framed by mortise and tenon, and pinned together according to the methods of former generations. Yet the man who wanted to say something, and said it without an intelligent understanding, of what he said, or the subject-matter said about, has started a mistatement which is likely to "go the world around," carrying with it the influence and effects of its erroneousness.

That buildings have been erected in this city, which at the end of ten years were hard to rent, is true, but the fact of their being "balloon structures," has had nothing to do with that result. Had the same general character of buildings, in their general planning arrangements and quality of construction, been built otherwise than "balloon frames," with every part carefully and scientifically mortised and tenoned, the same result would have followed.

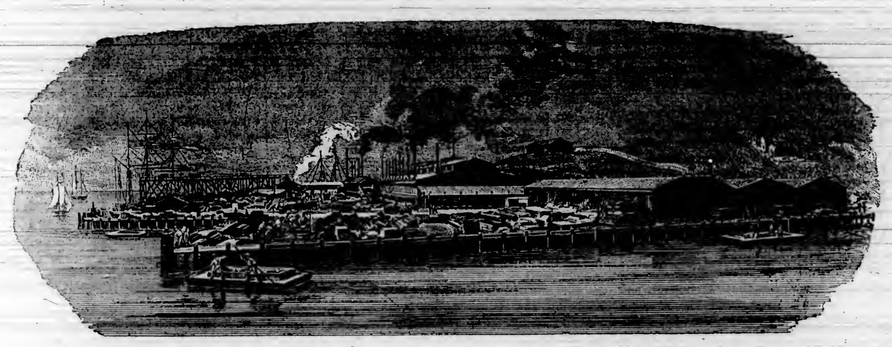
The fact cannot be denied, that many buildings erected ten years ago, and some upon which two winter's rains have not fallen, are "difficult to rent," but not on account of the "balloon" feature, but because they are not convenient in arrangement, and are deficient in "modern improvements;" in light and ventilation poor; ceilings low; sometimes cheerless, cold, and unhealthful, because so located as to exclude the sun from the most desirable and commonly used appartments; and numerous other defects, illustrating the incompetency of the parties acting as architects, or the penuriousness and self-conceived wisdom of the owner, who may have sought to economize costs by "doing without an architect." There are hundreds of houses in San Francisco which to-day do not rent for more than 60 per cent. of what they would, had a *competent* architect been engaged, and a comparatively small additional amount expended in their erection; and hundreds more of the same character, because some "*cheap man*," enjoying no recommendations as an architect except that of *cheapness*, has been allowed to play the part of an architect, while in very fact, the jack-plane or trowel, or at best the *tracing* of plans and *copying* of specifications made and written by some one else, may have been the full measure of his architectural abilities.

We know personally of frame buildings in this city, built "balloon fashion," which were erected *thirty* years ago, and have done good service ever since, and rent well to-day for the purposes for which they are used. And unless torn down to make room for more modern structures, they will continue to do service for twenty years to come. Still the mistatement referred to has commenced its round, and we presume that before it exhausts itself, will appear in a majority of the publications which notice such matters. And we further presume that the conscience of the man who wrote the statement, not understanding what he did write, will not be in the least disturbed, because he is the author of a silly misrepresentation, which falsifies facts terribly. There are many "balloon-built houses" in desirable localities in this city, erected within one, two, three or more years respectively, which are very "difficult to rent," although by no means "old," from causes and for reasons suggested by us, and none but simpletons would venture the assertion that "balloon" construction has any bearing upon the non-rentable result.

THE *Iron Age* mentions a decision of the Supreme Court of Pennsylvania, regarding the liability of a certain corporation—the Keystone Bridge Company of Pittsburgh—for injuries received by two of its workmen while employed in constructing a roof at the company's works. The plaintiffs were laborers, working under direction of a certain Wymond, in placing the iron rafters on the building. A trestle plank was used in setting up the roof, and while the two men were carrying a rafter along, this plank gave way, throwing them to the ground. The question seems to have turned on the relation of Wymond to the men who were injured. If he was the agent of the corporation, and as its representative furnished the plank for the workmen to walk on, he, and the corporation through him, would be liable for damage caused by its defective character. The lower court held that he was to this extent the agent of the corporation, and ordered a verdict for the plaintiffs; but the Supreme Court reversed this decision on the ground that the evidence did not show Wymond to be in such a way the representative of the defendants as to make them responsible for his acts of negligence. The plank was not furnished by the corporation, nor had any directions or instructions in regard to it been given to Wymond; but he himself, with the help of two other workmen, had made it in a way they thought proper. To this extent Wymond was simply a fellow-workman with the plaintiffs, and his or their error of judgment could not give ground for liability as against the corporation for the injuries of the plaintiffs. The distinction appears to be a very nice one; but the position taken by the higher court is at least reasonable.

The Industries of the Pacific.

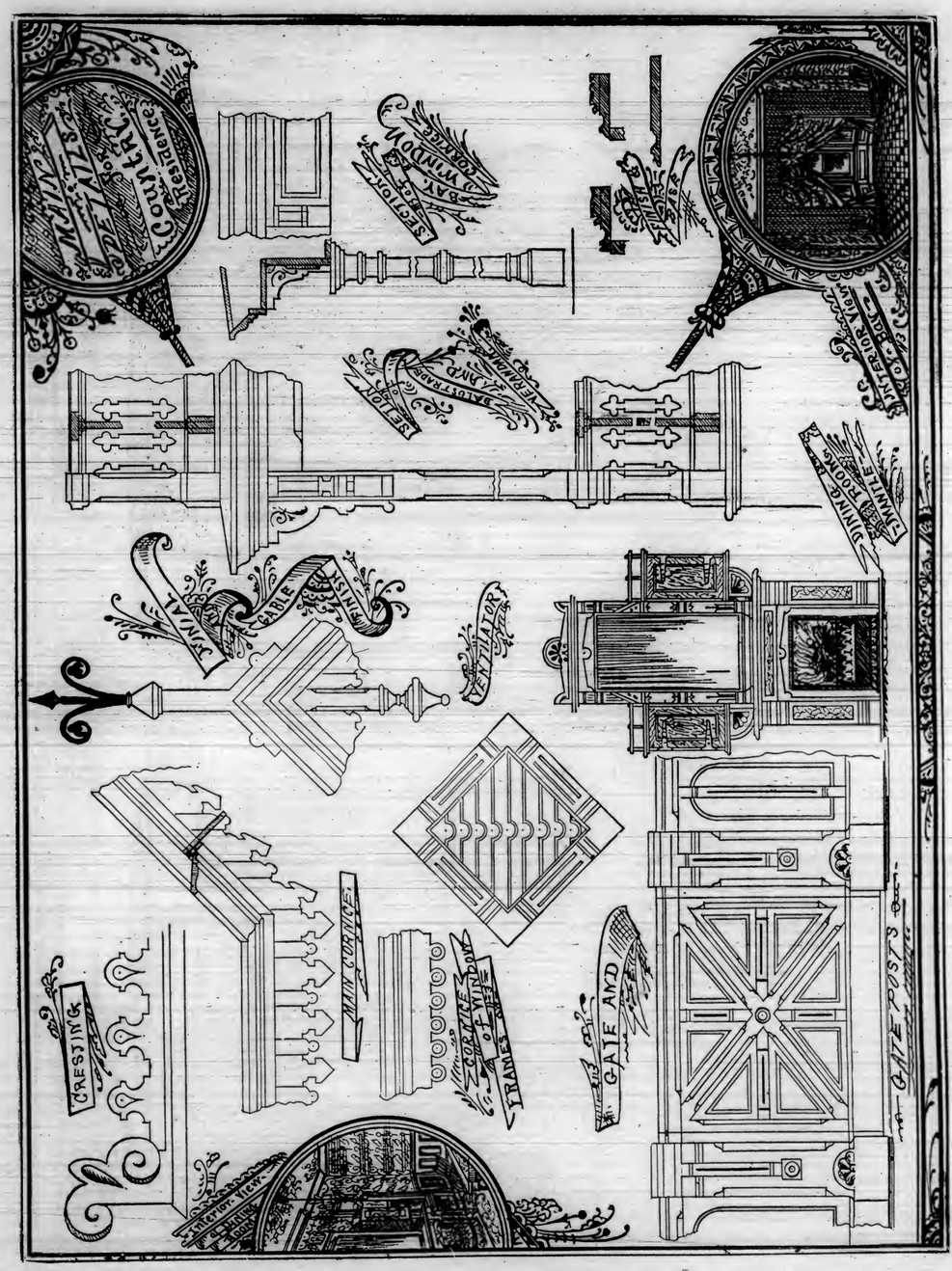
PACIFIC ROLLING MILLS.



Among the numerous manufactories San Francisco can boast of, which for size and magnitude are unequaled on this side of the mountains, the Pacific Rolling Mills stand pre-eminent. Visitors to South San Francisco by the cars, or travelers on the bay, have doubtless had their attention drawn to a number of chimneys which appear to be continually belching forth volumes of smoke and steam. The works are built on a narrow neck of land at the junction of Mission Creek and the bay. The company first started their works in July, 1868, and have gradually year by year extended their capabilities and machinery. So thoroughly and effectively has this been done, that the mills are now in a position to execute orders upon as favorable a basis as Eastern competitors. Admission is gained to the establishment through a large pair of gates. Situated upon the left hand is a wooden building containing the Superintendent's office, the office for checking the arrival and departure of the workmen and weighing the raw or manufactured material brought in or going out of the works. The establishment is divided into five departments, each of which has a skilled artisan at its head, who is directly responsible to the Superintendent for his particular branch. The first department is for rolling bar, rod, and structural iron of every description. The second department is devoted entirely to the manufacture of railroad iron. The third comprises forges for heavy locomotive, marine shafting, and engine work. The fourth division is a factory where railroad bolts, fish-plates, nuts, washers and ship's spikes are made. The fifth and last department is the machine shop, where tools used at the works are repaired. This department comprises the carpenter and box-making shop, where all the wood-work and patterns so requisite to a large foundry are made. By far the greater part of the iron used at the mill is scrap iron. This consists of every variety and shape of old iron, and arrives from all parts of the State, and sometimes from Australia and China. Upon arrival the scrap is sorted into heaps weighing 200 pounds. These heaps are placed into reverberatory furnaces, where they remain until a welding heat is reached. The heated mass is then rolled into bars by a series of rollers having a smooth surface. The bars are then cut into lengths, placed in piles according to the weight to be apportioned to each series of bars. The cut bars, technically termed puddled bars, are now ready for conversion into merchant bars. They are placed into furnaces until the mass becomes heated to a soft consistency. The rollers are now brought into use. Attached to each train of rollers are ten men, five of whom are stationed at the point nearest the mouth of the furnace, armed with long iron tongs, which they use for grasping the heated bar when it issues from the furnace. The other five men have also tongs, but their services are only required to guide the bars as they emerge from between the rollers. The train of rollers used for rolling bar iron have grooved surfaces, each set being gauged so as to obtain the required size, which varies from ten to twelve feet in length and from a quarter to one inch in thickness. The first set of rollers are termed the roughing down, while the set from which the bars emerge are called the finishing rolls. Over each train of rollers are reservoirs of water, which is poured down in a continuous stream, for the purpose of keeping the bars smooth and free from scale. The bars when rolled are cut by steam shears to the required lengths.

The train of rollers where railroad iron is manufactured has square grooves. The puddled bars are placed in the rollers, and after undergoing shaping are received under a large steel shears, which cuts them into the proper length. After the rail is rolled it has a curved shape, but as it cools it becomes perfectly straight. Whilst it is still warm it is conveyed to a machine which punches holes on the flange in order to fix the fish-plates which are used to bind it to the sleeper. A similar process is used for the manufacture of rod iron, with the exception that the face of the rollers is of a round form, and is graded to eight inches in size. All the ends or cuttings are placed in a heap, to be again melted in the cupola furnaces. The engine which drives the bar, rail and rod rollers is 380-horse power, and has a speed of 108 revolutions per minute. The dimensions of the two trains of rollers are eighteen and twelve inches respectively. The building under which these rollers are situated is a large, open shed, lofty, and extremely light and airy. Situated under the same roof are the puddling mills and hydraulic squeezers. This machinery is utilized for making heavy shafting and marine work. A molten mass of iron several tons in weight, is placed under the squeezer, which acts upon it as if the titanic mass were a piece of butter. By its action the iron is brought into rough shape, and made ready for the steam-hammers which are built close by. These hammers exert a nominal crushing power of 240 and 150 tons, respectively, and their ponderous strokes make the ground in the vicinity shake and tremble. A machine for bending angles is close by, and is chiefly utilized for working up iron intended for structural purposes. Outside of this building are the cupola and reverbatory furnaces—eighteen in number. Their melting capabilities, when exerted to their utmost, is 130 tons per diem. By an economical system the heat of these furnaces is utilized to generate steam in the forty boilers which supply the engines of the works.

In an adjacent building is a machine which cuts spikes for railroad use with as much ease as a piece of soap is cut with string. The immense storehouses are situated on the south side of the works. Here may be seen piles of rails, bar, rod, angle and every description of manufactured iron. Cases of spikes, nuts, bolts and screws are stacked in tiers. Around the wharf an elevated railroad is used for unloading vessels bringing scrap-iron, coal, and material for the mills. In the blacksmith shop are three steam-hammers, exerting a power of fifty tons; also, fifteen forges. The factory, where the various railroad requisites are made, has a number of machines driven by steam. One machine receives the bar of hot iron at one end and turns out the nuts bored and squared. Another machine completes the nails for track-laying; while a third punches four holes at one time into fish-plates. A spike-machine works up the raw material at the rate of seventy-five per minute, whilst a series of bolt-cutters fits and cuts 7500 bolts every day. Machinery for cutting, pressing and finishing washers, screws, harrow-teeth and rivets, is constantly at work. A plain disc, revolving three thousand revolutions per minute, is used for cutting iron whilst cold, chiefly beams and pillars for structural purposes. The resources of the mills are fully patronized. Large orders are now being filled for the Oregon Railroad Company, the various cable and horse roads about to be laid in this city, and also for heavy forgings for the engines building at the principal iron works. From three to four hundred men and boys are employed at the mills, and the pay-roll averages three thousand dollars weekly.



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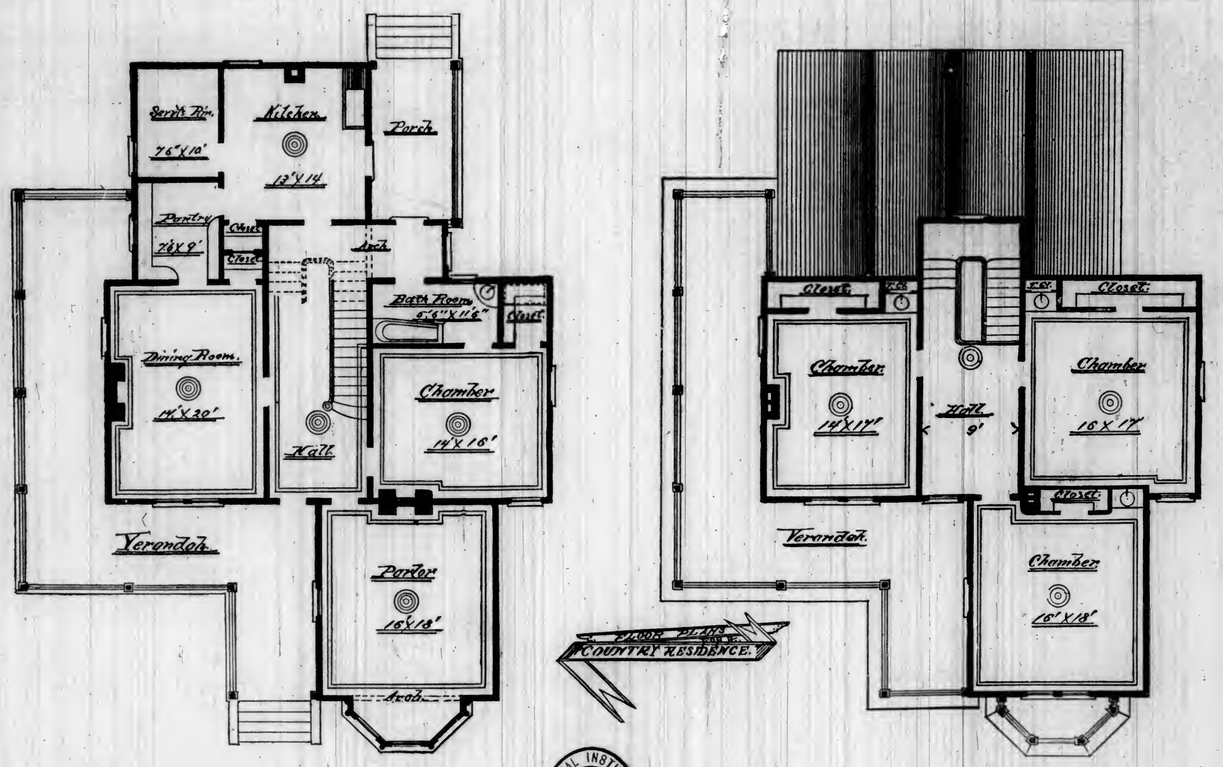

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EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

MR. EDITOR: Please state in your next which cable street-railroad has the highest grade to ascend, and oblige MANY READERS.

The grade of streets upon which cable lines are run are as follows:

Clay street, at Kearny, the point from which all the cable roads start, is 28 ft. above base. Following the respective blocks on that line, they run as follows: Dupont street, 68 ft; Stockton street, 128 ft.; Powell street, 205 ft.; Mason street, 276 ft.; Taylor street, 280 ft.; Jones street, 338 ft.

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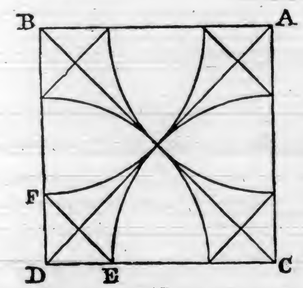
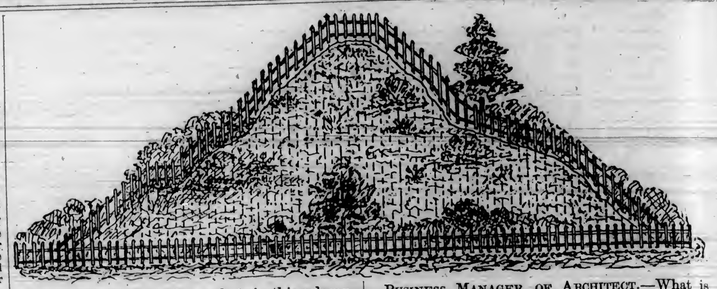


Draw the diagonal AD in a given square. Take one-half of it for a radius, and with A, B, C, D as centers, describe the segments of a circle. Join the points of intersection as at FE, and you have a perfect octagon.—*From the "Steel Square," by Hodgson.*



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4-d.,	out, 260 to lb.,	finish	386
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8-d.	wrought, 96 to lb.	fencing,	54
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"Divide the height from the bottom of the water-table to the second-story window-sills into 12 diameters. Divide one of these diameters into 50 minutes for units of measurement, and give the proper proportions for a one-story cornice, without frieze or architrave, at this point, namely, 70 parts of minutes. Now enlarge this size in accordance with the directions given for superimposed members above the first story. Reduce the parts so obtained to feet and inches, which would be the horizontal projection at the eaves of the house. Determine the pitch line of the roof, and make the gable end projection equal to the inclined projection at the eaves.

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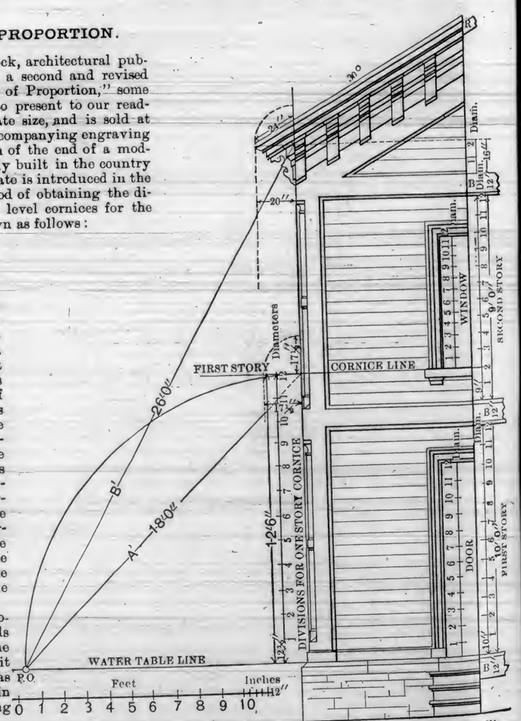

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ANS.—We will give our views at length on this subject in a future issue. We can assure our correspondent that houses *can be so built*. Any *competent architect* can so construct buildings as to render them perfectly safe against the encroachments of rats.

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ANS.—*Acre* was originally applied to the quantity of land one plough could plough in a day. Each nation has its standard for the quantity contained in an acre. The Latin *ager* and Greek *agros* are identical in meaning, *i. e., a field*. The German *acker* means both a field and measure of land.

WE have been asked by a foundryman if we knew of a good way of taking iron specks from the eye, as it often happens that iron-workers are unfortunate enough to get small fragments upon the eye-ball, and the use of a knife is sometimes necessary to dislodge the iron. We would state that we have removed such particles very readily with the aid of a strong magnet. It would be well for iron-workers to have one of those useful articles handy in case of necessity. A drop of glycerine in the eye is also an excellent remedy for the removal of extraneous matter.

How many feet of 1x6-inch weather-boarding, 4 inches to the weather, 2-inch laps, does it take to cover 2,000 superficial feet, allowing nothing for waste? B.

Your question involves more than one proposition, neither of which are clearly stated; or, if "allowing nothing for waste" is considered definite, that which precedes raises a question as to the conclusion sought to be obtained.

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Breakages have occurred "all over the city," and "caved-in signs" are conspicuous in all directions. We have heretofore stated that safety was not assured upon our streets during heavy rains, and so it has proven, as horses, vehicles and human beings have fallen through caves which have occurred during the present storm, and at least one harmless and unoffending animal found a watery grave, while the human brutes who have robbed the city still live.

There is not a shadow of excuse for this unpardonable state of affairs. If sewer builders are a combined set of soulless swindlers, practicing dishonesty in every contract undertaken, where have been the *honest men* set by the people to watch public interests? One of three things is established by the facts of the case: either the officials have been conniving and compromising with rogues in connection with sewer contructions, or have been criminally careless and neglectful, or entirely incompetent for the trust confided to their keeping.

But so long as sewer-work is let by contract to scheming, unprincipled men, actuated solely by the love and desire for gain, without any competent party to supervise their work, no better result need be expected. It is a fact beyond successful contradiction, that shoemakers, tailors, laborers, and nothing-at-alls have been allowed to personate the farce of superintending the construction of sewers in San Francisco. Such superintendence is simply a play into the hands of the contractor—a mere shadow of restraint upon glaring tricks and premeditated outrages, and a willful robbery of the public treasury; for such men are mere shams appointed for the express purpose of permitting the parties over whom they are appointed to complete dishonesties by neglects, omissions and imperfect work and materials. Still the "patient public" permit these things to be regularly practiced, and a good providence occassionally sends "heavenly rains" to illustrate the truth of all we have stated.

We very well understand that all this writing is a waste of time, as the sublime gentleness and submission of the "dear people" kindly excuses and tolerates, nor ever seeks to bring to justice, those who filch and plunder, or permit roguries through contracts for public works.

IN fighting that terrible enemy, sewer-gas, it will not do to depend upon the plumber. In sleeping-rooms the siphonage of the trap is the opening of the gate of death; and yet, strange to say, thousands of people hear nightly this death-rattle in their rooms, and do not know what it means. Now, if one can't have effective plumbing, the next best thing is to know what do about it. As siphonage implies the breaking of the water-seal that acts as a barrier against free admission of sewer-gas, it is, first of all, important to know what traps are defective. When one hears a low, gurgling sound in the wash-basin, the time for action has come. Any noise beneath the wash-basin, at any hour of the day or night, when the water is not turned on, means death. The gurgling sound is caused by a draft of air down the escape-pipe which breaks the water-seal. Of course the services of the best plumber should be had at once; but in the meantime, fight the enemy. First turn on the water and fill the trap. Then put in the plug, fill the basin half full of water, and with wax or soap seal up the overflow holes. Lower a window, and let in the outer air. Until the sound of siphonage ceases, and you are absolutely certain that the trap can be relied on, stand guard over it. Keep the overflow holes sealed and the plug in, no matter at what risk of flooding lower rooms, in case some one is thoughtless enough to leave water turned on. If every family would act on these hints we should have less diphtheria.—*Builder and Wood-Worker.*

Londoners pay between £70,000 and £80,000 per annum for water sold in milk—so says the Local Government Board for 1879–80.

Mechanical Associations.

Associations of mechanics have been formed for many years past, for beneficial purposes. These trade organizations in many instances have been for a mercenary purpose, and seek to form combinations, to raise the rate of wages, or to lower the term of hours per diem. Now in my opinion these objects are of a secondary nature, for they seek by force to control the value of labor, whether the demand for that labor will rise or fall by its enforcement. And here is where they err, for the *want* or *market* value will enhance or lessen the demand for skilled artizans. They can only succeed when the numbers are few, the *wants* pressing. But it often happens through the discontent of the trades, with dishonest leaders, to try the experiment at a time when commercial values are fluctuating, and bloated warehouses are wasting the capital that stimulates the marts of trade. The abortive movements of these associations are the result of their defective organization and the admission of aspiring agitators to membership. There should be less mercenary, and more of the nobler efforts to improve the aims and objects of the society. Societies formed for the mental and intellectual improvement as well as the social enjoyments of its members, would be a step in the right direction. Then would follow reading and library rooms, well filled with mechanical and building review publications, where the members can become informed of the progress of the arts and sciences. Statistics of the trade, material to the state and condition of the market, should be read and discussed by the members, and thus diffuse a knowledge of its true condition. In this way mechanics would become posted on the whole state and condition of the world's market, and of their particular trade, and will know when capital is in a condition to stand a *raise*, or whether to avoid any or all rash movements of the kind. A good mode of ascertaining the condition of a given state of things, is to use in a diplomatic way, a course of interviews with those who control and employ the sinews of the trade. When these devices have failed to meet a felt want by the many, then resource should be had in co-operation. To do this, it is necessary to fully compass the business in hand; its requirements must be carefully estimated, so that the amount of capital needed will be known, and then subdivided into shares, so that individuals will know what part they can take in the new Co-operative Association and Improvement Company. In some such manner mechanics can help themselves in a legitimate business way, and help others indirectly by lessening the local supply of labor, which in many kinds of business would tend to an increase in the price of that labor. Another form should be engrafted into the constitutions of all trades societies, embodying that employment funds should be set apart for a time of pressure, when there is a lack of work, or when application subjects its members to poverty. Then these moneys would come to the rescue, and provide for a time when wages are very low, or when it is imperatively necessary to lessen the supply of labor in any locality, if so be, and use these funds to find it in some more prosperous community. In this way, the thing could be equalized and serve to enhance the pay of those who remain. In mechanical workingmen there should exist a unity of brotherhood, extending universally, so that telephonic commmunication, so to speak, would unite them more closely together. A system of labor exchanges could be organized, by which reciprocal orders would be very advantageous to many of its worthy members. In such organized efforts, a reform in the condition of deserving mechanics would insure and come about in a manner that all classes would be glad to own that it was the way to elevate the workingman. Population centers in all large cities and manufacturing towns, and sooner or later, according to the exigencies of the market, they become overstocked, and the result is suffering for want of work by the masses. Now it behooves the mechanics to bestir themselves, and form societies on a new basis, which will embrace the foregoing features; and cease not in your efforts until WORK-SHOP SOCIETIES can be found in all large cities and towns in the United States, and thus provide for universal diffusion of mechanical labor. J. E. W. C.

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

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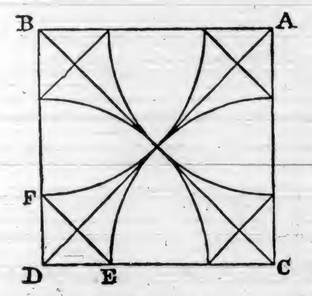

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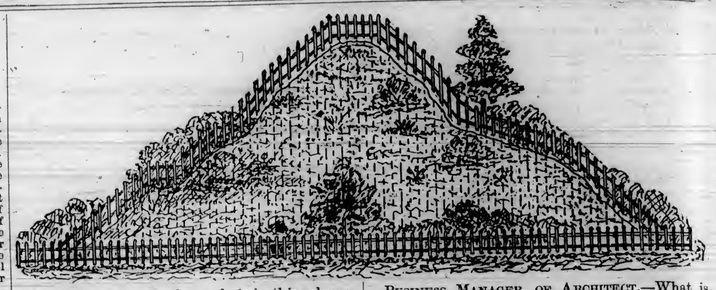

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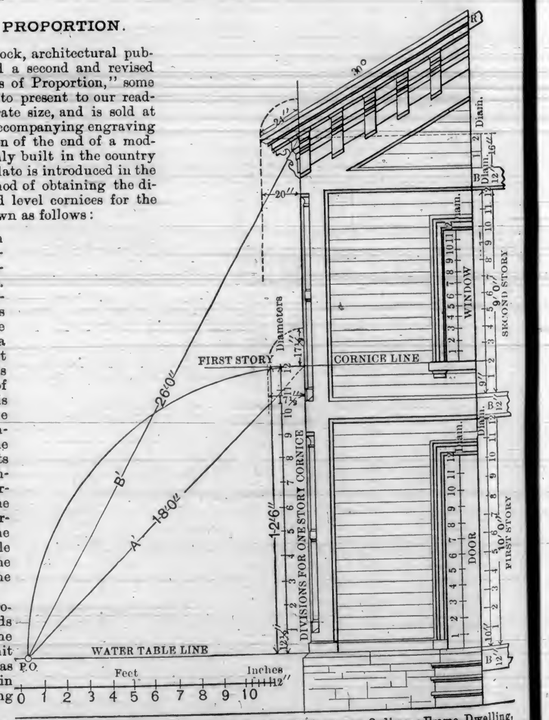

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But so long as sewer-work is let by contract to scheming, unprincipled men, actuated solely by the love and desire for gain, without any competent party to supervise their work, no better result need be expected. It is a fact beyond successful contradiction, that shoemakers, tailors, laborers, and nothing-at-alls have been allowed to personate the farce of superintending the construction of sewers in San Francisco. Such superintendence is simply a play into the hands of the contractor—a mere shadow of restraint upon glaring tricks and premeditated outrages, and a willful robbery of the public treasury; for such men are mere shams appointed for the express purpose of permitting the parties over whom they are appointed to complete dishonesties by neglects, omissions and imperfect work and materials. Still the "patient public" permit these things to be regularly practiced, and a good providence occassionally sends "heavenly rains" to illustrate the truth of all we have stated.

We very well understand that all this writing is a waste of time, as the sublime gentleness and submission of the "dear people" kindly excuses and tolerates, nor ever seeks to bring to justice, those who filch and plunder, or permit rogueries through contracts for public works.

IN fighting that terrible enemy, sewer-gas, it will not do to depend upon the plumber. In sleeping-rooms the siphonage of the trap is the opening of the gate of death; and yet, strange to say, thousands of people hear nightly this death-rattle in their rooms, and do not know what it means. Now, if one can't have effective plumbing, the next best thing is to know what do about it. As siphonage implies the breaking of the water-seal that acts as a barrier against free admission of sewer-gas, it is, first of all, important to know what traps are defective. When one hears a low, gurgling sound in the wash-basin, the time for action has come. Any noise beneath the wash-basin, at any hour of the day or night, when the water is not turned on, means death. The gurgling sound is caused by a draft of air down the escape-pipe which breaks the water-seal. Of course the services of the best plumber should be had at once; but in the meantime, fight the enemy. First turn on the water and fill the trap. Then put in the plug, fill the basin half full of water, and with wax or soap seal up the overflow holes. Lower a window, and let in the outer air. Until the sound of siphonage ceases, and you are absolutely certain that the trap can be relied on, stand guard over it. Keep the overflow holes sealed and the plug in, no matter at what risk of flooding lower rooms, in case some one is thoughtless enough to leave water turned on. If every family would act on these hints we should have less diphtheria.—*Builder and Wood-Worker.*

Londoners pay between £70,000 and £80,000 per annum for water sold in milk—so says the Local Government Board for 1879–80.

Mechanical Associations.

Associations of mechanics have been formed for many years past, for beneficial purposes. These trade organizations in many instances have been for a mercenary purpose, and seek to form combinations, to raise the rate of wages, or to lower the term of hours per diem. Now in my opinion these objects are of a secondary nature, for they seek by force to control the value of labor, whether the demand for that labor will rise or fall by its enforcement. And here is where they err, for the *want* or *market* value will enhance or lessen the demand for skilled artizans. They can only succeed when the numbers are few, the *wants* pressing. But it often happens through the discontent of the trades, with dishonest leaders, to try the experiment at a time when commercial values are fluctuating, and bloated warehouses are wasting the capital that stimulates the marts of trade. The abortive movements of these associations are the result of their defective organization and the admission of aspiring agitators to membership. There should be less mercenary, and more of the nobler efforts to improve the aims and objects of the society. Societies formed for the mental and intellectual improvement as well as the social enjoyments of its members, would be a step in the right direction. Then would follow reading and library rooms, well filled with mechanical and building review publications, where the members can become informed of the progress of the arts and sciences. Statistics of the trade, material to the state and condition of the market, should be read and discussed by the members, and thus diffuse a knowledge of its true condition. In this way mechanics would become posted on the whole state and condition of the world's market, and of their particular trade, and will know when capital is in a condition to stand a *raise*, or whether to avoid any or all rash movements of the kind. A good mode of ascertaining the condition of a given state of things, is to use in a diplomatic way, a course of interviews with those who control and employ the sinews of the trade. When these devices have failed to meet a felt want by the many, then resource should be had in co-operation. To do this, it is necessary to fully compass the business in hand; its requirements must be carefully estimated, so that the amount of capital needed will be known, and then subdivided into shares, so that individuals will know what part they can take in the new Co-operative Association and Improvement Company. In some such manner mechanics can help themselves in a legitimate business way, and help others indirectly by lessening the local supply of labor, which in many kinds of business would tend to an increase in the price of that labor. Another form should be engrafted into the constitutions of all trades societies, embodying that employment funds should be set apart for a time of pressure, when there is a lack of work, or when application subjects its members to poverty. Then these moneys would come to the rescue, and provide for a time when wages are very low, or when it is imperatively necessary to lessen the supply of labor in any locality, if so be, and use these funds to find it in some more prosperous community. In this way, the thing could be equalized and serve to enhance the pay of those who remain. In mechanical workingmen there should exist a unity of brotherhood, extending universally, so that telephonic communication, so to speak, would unite them more closely together. A system of labor exchanges could be organized, by which reciprocal orders would be very advantageous to many of its worthy members. In such organized efforts, a reform in the condition of deserving mechanics would insure and come about in a manner that all classes would be glad to own that it was the way to elevate the workingman. Population centers in all large cities and manufacturing towns, and sooner or later, according to the exigencies of the market, they become overstocked, and the result is suffering for want of work by the masses. Now it behooves the mechanics to bestir themselves, and form societies on a new basis, which will embrace the foregoing features; and cease not in your efforts until WORK-SHOP SOCIETIES can be found in all large cities and towns in the United States, and thus provide for universal diffusion of mechanical labor. J. E. W. C.

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

Our Manufacturing Interests.

Manufactories are the golden hinges upon which swing the gates of wealth and permanent importance to thousands of cities, towns and villages, and renders nations both rich and great. In this respect, San Francisco has been and is behind the times. Only a few of its wealthy citizens have availed themselves of the advantages, and created interests from which they are reaping deserved paying rewards. And while we all, as citizens, desire to witness greater prosperity in our midst, the grounds for hopes in that direction will remain unsubstantial, so long as manufacturing pursuits are permitted to remain inactive. True, the field is in part occupied, but there are numerous other portions which call for sowers and reapers; and if the progressive and enterprising spirit was more active, soon tens of thousands of industrious men would be called to this coast to labor and add wealth to our favored State. The cry is common and frequent, "We want population"; but so long as there is a limited demand for labor, labor will resort to places where the demand equals the supply permanently. Men will no more flock to places where there is no reasonable prospect of remunerative employment, than will birds to desert plains where there is neither food nor water. Consequently, the cry should be changed to, "We want manufactories," for that will bring us population. The fact that our one-sided State is shut out along its Pacific Ocean shores from the advantages and benefits of tributary districts of country, increases the necessity for the exercise of business energies on the part of its people. It is a "goodly land" in the gifts of Providence, in climate and resources, with no other than the weaknesses imposed by the inactivity and lack of energy practiced by its inhabitants. Many have reaped the fruits of its prolific channels of wealth, which still flow on, awaiting other hands yet to gather more—with assurances that the earnest, energetic and prudent will find a full supply of all that is required, to make judicious manufacturing enterprises both successful and profitable.

If our successful business men would take the matter in hand, invest the necessary capital, and enter upon a determined purpose to establish these nurseries of permanent prosperity, there is every reasonable and rational ground for the belief that the results would prove fully satisfactory. The enterprise and fixedness of purpose on the part of those gentlemen who have developed the sugar-refining interests of this city, and those who have made woolen mills successful enterprises, are but two examples of many that might be mentioned; and if there were others of like progressive dispositions, willing to take hold and work up other at present dormant interests, the lament over sparseness of population would be hushed in the cheerful hum, buzz, and ring produced by the labors of thousands who would come and make this coast their homes.

Fatal Accident, and More may be Expected from Like Causes.

Within two or three days preceding the 15th inst., two accidents were reported as occurring in Oakland, resulting in the death of one, and the serious injury of three other parties. In the first case, two men attempted to reach the roof of the building, by first climbing on to the wooden awning suspended across the front, and which gave way, precipitating both parties to the ground, inflicting contusions, cuts, bruises, fractures, etc.; and as first reported, leaving both of the victims in a dangerous condition. In the other and later case, it is stated that the two men were leaning against the railing or balustrade, which gave way, and precipitated both of them to the street, each receiving severe injuries about the head, and terminating in death to one of them.

We notice these happenings not so much for the purpose of presenting the personal injury feature, as to direct attention to the cause producing the injuries.

"Wooden awnings" across store fronts are common in every city and town upon the Pacific Coast, and in some places not a single store is complete without the addition of such appendages. This is peculiarly the case in Oakland, where the awnings are not only numerous, but generally built full width of the sidewalk, supported near the edge of the sidewalk with posts. A similar state of things exists in Sacramento. The arguments in their favor are, that in hot weather they afford shelter from the heat, and protection to goods, wares, and merchandise exposed for show in front of stores; and in the rainy season they shed the water from the sidewalks; all of which is well enough as far as it goes, but the fact that they are frequently insecurely constructed is a great offset to their utility, and the cases here mentioned should convey a universal warning wherever awnings exist. In numerous cases they are built without any due regard to strength and durability—mere traps to tumble down under slight pressures from weights placed upon them, or the force of moderately stormy winds.

The class of awnings supported on posts should be safe, so long as the wood of which they are built remains sound. But the fatal case noticed occurred in connection with one of the post-supporter constructions, and not by a tumble down of the awning entire, but because one of the balustrades around its roof margin was insecurely put up, and after a few years of service gave way under the slight pressure of two men leaning against it. This would not have been the case had anything like proper mechanical judgment been exercised by those who built the "trap," which has landed at least one unsuspecting human being in eternity; and the same may with safety be stated in regard to the first of the two occurrences, which fell by the weight of two men upon it.

Awnings, well and strongly built by skilled and competent workmen, can be made as safe and secure as any other part or portion of a building, and as stringent regulations should be enforced in all such cases. The tumbling down of awnings is a serious matter, calculated to jeopardize the lives of women and children as well as men; and inasmuch as they are frequently erected by men who are incompetent to execute any sort of mechanical work properly, there should be some law or system of inspection by qualified parties, to prevent the construction of dangerous conveniences along public thoroughfares.

Night Air.

An extraordinary fallacy is the dread of night air. What air can we breathe at night but night air? The choice is between pure night air from without and foul air from within. Most people prefer the latter—an unaccountable choice. What will they say if it is proved to be true that fully one-half of all the diseases we suffer from are occasioned by people sleeping with their window shut? An open window most nights in the year, can never hurt any one. This is not to say that light is not necessary for recovery. In great cities night air is often the best and purest air to be had in twenty-four hours. I could better understand shutting the windows in town during the day than the night, for the sake of the sick. The absence of smoke, the quiet, all tend to make night the best time for airing the patient. One of our highest medical authorities on consumption and climate has told me that the air in London is never so good as after 10 o'clock at night. Always air your room then from the outside air if possible. Windows are made to open, doors are made to shut; a truth which seems extremely difficult of apprehension. Every room must be aired from without, every passage from within. But the fewer passages there are in a hospital the better.—*Florence Nightingale.*

Items Generally.

During the year 1880, nearly $2,000,000 was spent in building manufactories, business blocks and dwellings at Minneapolis, Minn. St. Paul has been growing with a like rapidity, and has spent over $2,000,000 on buildings.

The aggregate single issue of the newspapers and periodicals of the United States and Canada is about 20,700,000 copies, or about one copy to every two and one-half persons. The aggregate annual circulation is 2,295,591,990 copies of newspapers and magazines.

According to the *Springfield Republican*, the export of American petroleum to China, Persia, and the countries of the East, is largely on the increase. The people are outgrowing the fears at first entertained, regarding its explosiveness. It is recommended that American lamps should accompany the petroleum exported to those countries. In view of the increasing demand for this product, it is possible that, in time, American petroleum may prove to be the "light of Asia."

The Cleveland (O.) gas company reduced its rates to $1.80 per 1,000 feet, last July, and owing to the increased consumption, an additional reduction to $1.60 was made in December.

Clippings from Magee's Real Estate Circular for February.

"SAN FRANCISCO, February 1st, 1881.

"January was one of the dullest months that we have had to chronicle for a long time in real estate. Its dullness was rendered more conspicuous by extensive and foolish offerings at auction. Had the prices of three-fourths of the properties thus offered been 25 to 30 per cent. less than those fixed, they still would not have found buyers, because there is next to no market for the most of the offerings recently made. The auctioneers know this, too, as well as we do. What object they accomplish in offering what they know will not sell, it is difficult to say. Only that which is salable and put at very low prices should now be offered at auction. To offer long lines of unsalable property, and houses and lots at $2,500 to $5,000 find reasonably rapid sale. There were sales made in all in January, of the value of $1,151,402."

"15,000,000 PEOPLE TO DIE FROM BAD SEWERAGE.—A Professor Grimmer (the last syllable should be dropped from his name) prophesies bloodred ruin, from a remarkable perihelia which will soon occur between a comet and the sun. Death and destruction will be in the gale, according to the 'Prof.,' and he winds up by asserting that '15,000,000 people in America will perish, if the sewers of our cities are as imperfect in 1881, as they were on the particular day in 1880 when the Professor uttered his cheerful prophecies. He no doubt makes his estimate of the decimation of the population of America on the basis of the condition of the sewers in Atlantic cities; but he knows nothing about those of San Francisco. If he had, he would have raised his estimate of deaths to at least 25,000,000; yet, dreadful as the condition of the sewers is here, we all go right along, paying no attention to them."

"THE EXTENSION OF THE FIRE LIMITS.—Brick buildings are not suitable for the residence portion of this city, and cannot be rented here; yet the Board of Supervisors has just extended the fire limits from Powell and Ellis, along Ellis to Mason; thence along Mason to Eddy; along Eddy to Taylor; along Taylor to Turk; along Turk to Jones; along Jones to Tyler; along Tyler to Leavenworth; along Leavenworth to McAllister; along McAllister to Larkin, and down Larkin to Market. This is an outrage, pure and simple, committed, we suppose, at the instigation of the insurance companies. The section between Powell and Larkin, Ellis and Market, is yet largely vacant, and who is going to build brick buildings there? What need is there for them there, and what rate of income could any one get if they were built? In this foggy and damp climate, who will live in a brick dwelling, in a strictly-residence neighborhood, when he can rent a frame dwelling elsewhere? We tell owners in the boundaries named that this absurd extension of the fire limits will seriously affect rents and values there, and will drive buildings and population beyond them. Property below Market street has been, in many cases, permanently injured by the Fire Ordinance. *That* is a fact now generally admitted, and to which we have frequently alluded."

"THE NEW GAS COMPANY.—H. M. Martin, the representative of the new gas company, is still in New York, endeavoring to have capitalists there help their agreement, to advance the money needed to build the new gas-works here. They agreed, if the company here would secure half of the old company's consumption and advance one-quarter of the cost of the works, that they would advance the other 75 per cent., taking bonds of the company as security. The new company has secured the consumption, and now stands ready to pay the 25 per cent. of the cost of the works, but the New Yorkers have not yet carried out their part of the bargain."

"MAKING GAS CHEAP.—Every possible facility should be given to Mr. Sharon, or any other large gas consumer to manufacture his own gas cheaply. The Supervisors may be acting in the public interest, in refusing permission to Mr. Sharon to store crude petroleum, but we doubt it. The gas monopoly is most likely the power behind the scenes with the Supervisors."

"ARTESIAN WELL.—The artesian well, corner of Brannan street and Center place, between Second and Third, with tank and pump, is now completed. At a depth of 90 feet, such an abundant supply of water was found that sinking was stopped. The proprietor will supply some houses in the neighborhood, besides having an abundant supply for his stables."

"A SOLEMN VIEW OF THE WATER QUESTION.—The President of the Spring Valley Water Company lately returned from the East. He had a look at the Humboldt desert and the Great American desert, east of the Rocky Mountains, where water is worth almost its weight in gold. He has visited the largest cities of the Union, but he nowhere set his eyes on a place where water is so dear as in San Francisco. Nowhere did he find a place where it is cheaper to drink beer or whisky than water. We do not say that water is dearer even here than beer; but we *ask* Mr. Howard, as the friend of the people and the enemy of monopolies, which we *all* know he is, if he would not rather—if he was an average householder—bring his children up on cheap beer than at the breast as it were of the Spring Valley monopoly at $3.50 to $5 per month, with frequent warnings against waste? We think this a solemn philosophical question, demanding a solemn categorical reply. We would at the same time like to ask Mr. Howard how he found newspapers and supervisors East?"

"SALES IN CHICAGO FOR SEVEN MONTHS.—The following table shows the real estate sales made in Chicago in the last seven months:

	SALES.	VALUE.
June	584	$2,143,917
July	783	2,064,929
August	613	1,687,348
September	900	3,229,126
October	843	3,583,763
November	704	3,086,258
December	917	4,768,487
	5344	$21,563,828

"It will be noticed that sales have greatly increased within the past four months, running up in December to $4,768,487. The year 1872 was the year of wild inflation in Chicago and other Atlantic cities, and it is now anticipated that the Chicago sales of 1881 will reach those of 1872, which amounted to $78,183,458. Chicago has since grown very much, and it is claimed that no inflation is now needed to make the sales of this year reach the enormous sum of $80,000,000."

"THE CITY HALL JOB BY DAY'S WORK.—Senators Kane and Enos, of this county, have advocated the bill to have all work on the City Hall done by the day. The bill should be entitled, A bill to rob tax-payers and to create nests for loafers. Just as many laborers and mechanics are employed on the City Hall under the competitive contract system as would be under the day's work arrangement, with this difference, that, under the former there is at least some approach to competition, responsibility, economy, and industry, while under the latter there would be nothing but poor work, laziness, waste, and corruption. We do not expect to see the City Hall elephant finished in much less than ten years, even under the present system, but under the day's work plan no one can prophesy how long the job would stretch out. Each employé would have the feeling that, as there was no one to call him to account, and as the city could stand it, the slower he worked the longer his job would last. No good workmen need expect work on the City Hall under the proposed day's work arrangement. Purple-nosed statesmen, such as one sees congregated on the S. W. corner of California and Montgomery; primary-election engineers, ward presidents, broken-down contractors, election-ticket peddlers, fellows who never pay a bill, and three-fourths of whose time is spent in saloons and 'putting up jobs,' are the classes that would be benefited by this plan to rob tax-payers. We hope the public will not forget that Senators Kane and Enos have advocated it, and also that Mayor Kalloch favors it."

"THE WRONG ANIMAL DROWNED.—A poor horse last month fell into a sewer which had caved, and was washed down through it and drowned. Now, if it had only been the contractor who built the sewer who was thus drowned—or, indeed, *any* street contractor—what poetic justice there would have been in his fate. But your street contractor, like policemen, is never in the right place when he is needed. Though, indeed, even if the contractor who built the sewer *had* been washed into it, we don't believe he would have been drowned. Drowning is not the fate for which street contractors were born."

"GREAT SYSTEM OF NEW RAILROADS IN THIS CITY.—Railroads—mostly cable lines—are now either under construction, or will soon be, in this city and county, that will cost at least $8,000,000. The roads under construction are the Market-street system, on Market, Valencia, McAllister, Hayes, and Haight. Attached to and connecting with the latter road, is the steam railroad from Stanyan and Haight, along Stanyan to H street, which bounds the Park on the south; thence along H street and the Park to the ocean beach; thence along the beach to the Cliff House. Three locomotives for this road are now standing on Stanyan street, near Haight. The rails are laid on Stanyan. Work on the cable engine house is now under way at Market and Valencia, for the Market, Valencia, and Haight street lines. The money for the construction of the cable road on Montgomery avenue and Union street to the Presidio has all been subscribed, and the road will be as speedily built as the weather will permit. The Turk-street line will also soon be turned into a cable road, from Market street to First avenue. An impression prevails that the opening of Turk street to its full width, through Jefferson square, is necessary before the change named can be made on the Turk-street line. This is not so; the company would rather the street was widened there, for its own and the public convenience; but the widening is not absolutely necessary to the change at all. The other road in the county is that from the present terminus of the Geary-street line, at Fulton and First avenue, along the northern boundary of the Park to the ocean beach; thence south along the beach into San Mateo county. It is said—though we doubt it—that all the money for this road—which is to be a narrow-gauge steam one, is already subscribed. The parties who are building, or are to build these roads, are all San Franciscans. They are all conservative, cautious men. The fact that they have sufficient confidence in the future of the city to invest so much money in railroads here, is a fact that should tend to give us all confidence."

Portland Cement—Demarle, Lonquety & Co.

The above named cement is manufactured by Messrs. Lonquéty & Co., at Boulogne-Sur-Mer, France, 20,000 tons of which was used in the erection of the exhibition buildings (Champ de Mars), in 1878. We have not used any of it in our practice as architects, but the high recommendations enjoyed by it justifies the expression of the opinion that it is of superior quality. Each barrel weighs full 400 lbs, and it is stated that an equal quantity will "go much further," and produce stronger work, than any other cement manufactured. Its use during the past 25 years has secured it an enviable reputation with the engineers and Board of Public Works of France. Sea water does not affect its cohesive qualities, and the numerous tests made in France and England places it in the front ranks of first-class cements.

Market Report.

GLASS.—Prices rule higher in New York City, thus affecting the market here. A full stock of all kinds can be had from our dealers.

PAINTS.—The local market is slowly but surely gaining a mastery over our Eastern competitors. Demand is slack, owing to the excessive rains.

OILS, LINSEED.

Jewett's Raw	70
Jewett's Boiled	75
Pacific Raw	70
Pacific Boiled	75

OIL PAINTS, WHITES.

Atlantic Lead	8@8½
Jewett's Lead	8@8½
Western Lead	—@8
Pioneer Lead	7½@—
California Lead	6½@7
Domestic Lead	5@5½
Pacific Lead	4½@5
French Zinc, G. S.	12@13
French Zinc, R. S.	10@11
American Zinc	5@7

HARDWARE.—The demand for hardware at this season of the year is exceptionally good. A decline of 5 cts. per keg is noted.

NAILS.—We note the following reduction:

10 to 60 pennies, are quoted at			$3 70
8	"	"	3 95
6	"	"	4 20
5 and 4	"	"	4 45
4 and 5 pennies, brad heads, at			4 95
6	"	"	5 20
8	"	"	4 95
10 and upward		"	4 70
3 penny fines		"	7 20

Imports since our last: Per Sintram, 2100 kgs Nails; per Frank N. Thayer, 3600 kgs Nails; per Vigilant, 2350 kgs Nails; per S. C. Blanchard, 2050 kgs Nails; by rail, 2220 kgs.

Imports since January 1st, 21,988 kgs; 186 hf kgs.

Imports by sea during the week have equaled 10,100 kgs, and — hf kgs, adding largely to the stock on hand, which now equals 25,000 kegs.

LUMBER.

We present to our readers the new schedule of prices adopted by the California Lumber Company's Exchange, to go into full effect on Thursday, the 17th of February, 1881. Very little business has been done during the past month, as the weather has been such as to almost stop building operations. There is only a fair quantity of lumber on hand. Doors, Blinds and Sash, remain the same as our last.

Pine.

Common Rough, up to 40 feet, per M feet			$21 00
"	41 to 50	" "	22 00
"	51 to 60	" "	23 00
"	61 to 70	" "	25 00
"	71 to 80	" "	27 00
Refuse Rough			17 00
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over,		"	28 00
"	4 " and under, and 1¼x4 and 1¼x6 Flooring and Stepping	"	30 00
Rough Clear for Flooring, $1 00 less than above rates.			
Second Quality Flooring and Stepping, per M feet			22 50
Ship Plank, Rough		per M feet	26 00
"	Planed 1 side	"	30 00
"	" 2 sides	"	32 00
Deck Plank, Rough		"	31 00
"	Dressed	"	35 00
Laths		per M	3 50
Wool Slats		"	10 00
Shakes		"	9 00
Redwood Posts		per piece	11

Redwood.

Rough Merchantable		per M feet	21 00
"	Refuse	"	17 00
Surface No. 1		"	32 50
"	1 x 6	"	30 00
"	No. 2	"	25 00
Rustic, No. 1, 1 x 8		"	30 00
"	No. 1, 1 x 10	"	32 50
"	No. 2	"	27 50
"	under 10 feet	"	27 50
T. & G., 1¼ x 4 and 1¼ x 6		"	32 50
"	6 in, 12 ft and over	"	30 00
"	" 7 to 11 feet	"	28 00
"	under 7 feet	"	25 00
"	No. 2	"	25 00

T. & G., Beaded, 12 ft & over, per M feet		32 50
" " 7 to 11 feet.	"	28 00
" " under 7 feet..	"	25 00
Half-inch Surface	"	27 50
Pickets, Fancy	"	25 00
" Rough, pointed	"	18 00
" " square	"	15 00
Siding, ½ inch	"	22 50
Shingles	per M	2 25
Battens, ¼-inch, lineal feet	"	4c

We are indebted to the *S. F. Journal of Commerce* for the following very full report of receipts and exports of lumber:

Receipts since our last: 1,500,000 feet lumber; 232,000 Shingles; 15,000 Posts; 60 cords Wood; 10 cords of Stave Bolts; 1226 bundles Staves.

Receipts since January 1st:

Lumber, feet	15,326,000
Shingles, No	4,740,510
Laths, No	1,544,000
Posts	45,400
Railroad Ties, No	21,550
Wood, cords	664
Staves, bundles	1,874
do cords	76
Hoop Poles, bundles	200
Hoops, bundles	481
Shakes	168,000
Telegraph Poles	26
Spars	6
Cedar, logs, No	1,332
Shooks	50,000
Barrel Staves, pkgs	524
Bolts, cords	14½
Wool Slats	10,000
Stave Bolts, cords	30

For several days, owing to the inclement weather, there were no arrivals, and stocks are only fair. There has been very little business done during the week. The supplying of dunnage for wheat cargoes promises to reach important dimensions this year, and we estimate that not less than ten million feet, worth $200,000, will be required in this way.

Exports of Lumber since February 1st:

	Feet.	Value.
Feb. 3..Shenir, Queenstown	14,000	$280 00
3..Jane A. Falkinburg, Hon	5,008	150 24
4..Colima, Panama	20,000	458 50
4..Colima, Central America	5,000	148 00
4..Ardvor, Queenstown	8,000	160 00
4..Ennerdale, Queenstown	12,000	240 00
4..J. B. Walker, Liverpool	20,000	400 00
5..G. C. Goss, Liverpool	24,500	490 00
5..Corona, Queenstown	19,000	380 00
5..J. A. Briggs, Antwerp	36,500	730 00
5..Pactolus, ——	19,000	280 00
5..Newbern, Mexico	16,430	360 70
Total	199,442	$4,177 44

CEMENT, PLASTER, LIME, ETC.

Imports since our last: Per Sintram, 250 bbls Plaster; per Frank N. Thayer, 1038 bbls Cement; per Vigilant, 500 bbls Plaster; per S. C. Blanchard, 415 bbls Cement.

Since January 1st: Cement, 7078 bbls; Plastor, 750 bbls.

Receipts of California Lime since our last: —— bbls. Total since January 1st, 6,354 bbls.

The Sea Waif during the same period brought 400 tons Gypsum to the Golden Gate Plaster Mills.

The value of the Cement and Plaster may be given as follows:

Portland Cement (duty paid)	$17,500
Rosendale Cement	8,676
Plaster	3.800
Total	$29,976

We quote Building Plaster, for hard finishing and general use, $2 50@2 75; Casting Plaster for ornaments, moulds, etc., $2 75; Superfine Plaster, for sculptors, mouldings, etc., $2 75@$3 00 per barrel.

Building Intelligence.

Considering the great drawback the incessant inclement weather has been during the past month, we are pleased to notice the evident revival of the building interest in this city. There are several contracts ready to sign in different offices; but owners are waiting "a little while longer," hoping to see a week of clear weather before starting their buildings. Our advices from the country during the past month have been such as to give us very good grounds for saying that this will be the best year we have had for some time, as far as buildings are concerned. We have heard of several jobs that actually have commenced, or would soon do so, in different parts of the city; but, upon close inquiry, have not found the case to be so we could report this month. The exceedingly wet weather has made it quite difficult to obtain information, and any building that we may have overlooked will be found fully reported in our next.

SAN FRANCISCO.

Four-story brick building and additional story over present building on southeast corner of Davis and Sacramento. Owners, Sol. Wangenheim & Co. Architects, Wolfe & Son; piling, J. P. Sheldon; brick work, W. E. Stevens; carpenter work, T. H. Day; cast iron work, Reese Llewelling. Total cost of improvements, about $45,000.

Two-story cottage at Sunol, Alameda Co. Owner, Mark Ager. Architects, Wolfe & Son. Builder, —— Sproll. Cost, $3,500.

Fitting up offices in brick building on north side California street between Davis and Drumm. Owners, S. Foster & Co. Architects, Wolfe & Son; carpenter work, W. Hall. Cost, about $1,800.

Additions and alterations to building No. 107 and 109 Sansom street, near Bush. Owner, H. K. Vande-Castella. Architect, F. Hillert. Day's work. Cost, $1,200.

Building No. 420 Montgomery is having a new iron front. Owner, —— Donahoe. Contractor, Doyle. Cost, about $3,000.

Alterations in building No. 424–428 Montgomery. Owner, —— Donahoe. Contractor, Doyle. Cost, —

Alterations of building on corner Sacramento and Hyde. Owner, B. P. Flint. Day's work. Cost, about $1,200.

Two-story frame on California street between Buchanan and Webster. Owner, W. E. Millel. Architects, Curlett & Eisen; contractor, J. Robertson. Cost, $8,500.

Two one-story stores, each 24x75, on Polk street between Pine and California. Owner, I. Lankershim. Day's work. Cost, $3,000.

Additions and alterations to dwelling No. 1714 Van Ness ave. Owner, H. Liebes. Architect, P. R. Schmidt; contractor, John Furness. Cost, about $2,000.

House No. 1402 Polk street is being raised to have a store underneath.

Six two-story dwellings on Pierce street between Pine and California. Owner, H. Hinkle. Day's work. Probable cost, $7,000 each.

Two-story dwelling on corner of California and Devisadero.

One and a half-story cottage on California street between Baker and Lyon. Architect, Schroepffer; contractor, W. Pluns. Cost, $2,500.

Two two-story frame dwellings on north side of Green street, between Hyde and Larkin. Owner, Mrs. Leppien. Architect, W. P. Moore; contractor, D. Hennessey. Cost, $4,000.

Dwelling north side of Geary street between Fillmore and Webster. Owner, C. M. Smith. Architects, Curlett & Eisen; contractor, Jos. C. Weir. Cost, $3,500.

Three-story store and dwelling at junction of Mason and Montgomery avenue. Owner and builder, —— Knopf. Cost, about $2,000.

Three-story and basement next lot north to above, in the rear. Day's work. Cost, about $2,000.

Stable on Geary street between Webster and Fillmore. Owner, J. Shaw. Architect, John A. Remer contractor, —— Berry. Cost, $400.

Store and dwelling on Howard street between Eleventh and Twelfth. Owner, F. Raisch. Architects, Townsend & Wyneken; contractor, W. Logan. Cost, $2,500.

Two two-story frames on Natoma street, near Sixth. Owner, S. Hancock. Architect, J. Marquis; carpenter, T. Riddel. Day's work. Cost, $3,000.

Dancing room and conservatory on corner Taylor and Geary. Owner, Mrs. Blitz. Architect, H. D. Mitchell; contractor, —— Gray. Cost, $1,200.

Additions to Philadelphia Brewery, corner Second and Tehama. Owner, J. Wieland. Architect, W. Winterhalter; contractor for brick work, —— Thornhill. Cost, ——

Mr. I. S. Kalloch is having a residence built on Castro street between Seventeenth and Eighteenth. Full particulars in next issue.

School-house corner Harrison and Beale. Owner, Capt. McNevin. Builder, T. J. Hamilton. Cost, $1,200.

Repairs to house No. 413 Jones street. Owner, Madame Duhart. Contractor, T. J. Hamilton. Cost, $500.

OAKLAND.

Repairs to the Catholic Church at Oakland Point. Architect, William Kirk. Cost, about $1,500.

Additions to house on Twelfth street, between Jackson and Ellis. Owner, A. Greenhood. Architect, W. Kirk; contractor, —— Curtis. Cost, $300.

One-story frame on corner Tenth and Clay to be used for photograph gallery.

Building at the Point, with brick foundation, for store. Owner, —— Zeigenbein.

Two-story frame building, corner Ninth and Grove. Owner, —— Bowman. Contractors, Gee & Merwin. Cost, $3,000.

Improvements at Sacket's School, Hobart street between Telegraph and San Pablo avenues. Builders, Gee & Merwin. Cost, $3,000.

ALAMEDA.

Three one-story, six room cottages on corner of Alameda avenue and Oak street. Owner, Jos. Maristanni. Contractor, C. A. Ingerson. Cost, about $5,500.

Cottage house, five rooms, on Park avenue. Owner, Ed., Flicourt. Builders, Gilbert & Brown. Cost, $1,300.

Two-story dwelling, twelve rooms, on Grand street between San Jose and San Antone avenues. Owner, E. H. Miller, Jr. Builders, Gilbert & Brown. Cost, $5,500.

Publication Notices.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

Modern Architectural Designs and Details, containing eighty finely lithographed plates; is published by Bricknell & Comstock, of New York, in parts or numbers. Part 5 is before us, and its cuts and illustrations are handsomely executed. The five parts received are all of like excellent character, and being all plates and illustrations without any reading matter, the eye grasps the contents of each page in a moment. Can be had at publishers' price, $1,00 each part, at this office. Every mechanic should supply himself with it, and no architect's library should be without it.

All of Bricknell & Comstock's publications, as advertised in our columns, may be had at publishers' prices through this office.

We have received a set of printed specifications, by Palliser, Palliser & Co., Bridgeport, Conn. They have unquestionably received great attention in their preparation, and may be well suited to Eastern localities; but as almost everything in house-building upon the Pacific Coast is special thereto, and differs in so many ways from Eastern practices, we question whether a set form of specifications could be framed which would operate alike in the two sections of country. In special cases the form referred to might apply; but generally in the erection of frame buildings upon this coast, they would require considerable erasures and additions. The almost entire absence of frost in this section of country considerably modifies necessities, and does away entirely with many of the precautions which are imperative in other parts. Still they are comprehensive and full, and we shall be pleased to show them to brother architects, and if any desire copies, we will forward orders for them.

We recommend our several excellent exchanges to those who desire to subscribe for Eastern journals. Among them we name in part, *The American Architect and Building News, Plumber and Sanitary Engineer, Carpentering and Building, Builder and Wood-Worker, Scientific Canadian, American Engineer, Kansas City Review, Illustrated Carpenter and Builder, Iron Age, Mechanic, The Building News*, and *Leffel's Mechanical News*. The many instructive articles selected from the journals mentioned, and reproduced in our own columns, furnish sufficient evidence of the excellent character of the respective journals designated. To those of our readers who are unable to subscribe for others, we simply state that the greatest care will be exercised in culling articles for our own use; and while we hope that many subscriptions will be extended to our Eastern contemporaries through this notice, we shall not permit any valuable article, containing interest to the people of this coast, to pass unnoticed. We will give the cream of all, and those who desire the milk with the cream in it, can obtain it by forwarding their subscriptions to either or all of the journals named.

The California Architect and Building Review.

VOLUME II.
NUMBER 3. } SAN FRANCISCO, MARCH, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect
—— AND ——
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,

Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion..... $1 50
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With reasonable reductions for larger spaces, and advertisements continued for six or 12 months.

The Outlook for the Season.

Great hopes have been entertained and expressed during the past two or three months, that a large amount of building improvements would be commenced in San Francisco during the early months of 1881. But up to the present time, the activities are moderate, and as will be noticed under the head of *Building Intelligence* in another column, the buildings commenced since the first of February are generally inexpensive structures. The only brick building of any note, commenced thus far, other than those represented in our January and February numbers, is that of Messrs. Wangenheim & Co., on Davis and Sacramento streets.

We are *informed* that plans are being prepared for other brick edifices, but as yet they are in embryo; and until buildings are commenced, in San Francisco, nothing is certain in regard to their construction, many being *contemplated* which never reach a condition more substantial than the contemplative. But, including the talked-of operations, the promise for the near future is simply fair; still, matters may improve, and a good summer and fall business set in.

The number of frame buildings commenced since our last report may also be gleaned from our "Building Intelligence" statement, showing a much better state of things than existed twelve months ago, but not the activity which characterized the early months of former years. While some of the architects of San Francisco are reasonably busy, others have but few, and some no orders for plans. All the facts go to illustrate that the hopes heretofore expressed are not being sustained by present building movements. The further fact that none of our contractors are "crowded" with work, and many of them have simply work enough to keep favored hands employed, and some entirely idle, indicates limitedness of operations. Still, this is better than it has been for several years; and with hopes continued, and a firm breasting of the same dullness that still prevails, the bright star of old prosperities may soon arise. But accustomed as we have been in years prior to 1877 to times which gave full employment to a much larger number of mechanics than are in this city at the present time, this lethargy and dullness hangs heavy upon us, and we weary in waiting the returning tide, when again every mechanic's and artizan's hands shall be employed, and the song of merry prosperity be heard on every hand. This much as far as San Francisco is concerned, and no better to state for Oakland. But reports come to us, that business is good in many of the inland and country towns and cities. The "good seasons" enjoyed, and the bright promise of another for 1881, have placed it in the power of many in the agricultural counties to add to their home comforts by erecting buildings for their families, and making other improvements. This naturally draws upon San Francisco for a supply of the necessary materials, and some of our hardware dealers, lumber merchants and others, report extensive business operations outside of this county; so that in the matter of buildings, while this city is not astir equal to what it has at other times been, its dealers in materials are reaping the benefits flowing from activities in other localities. We hope in our next issues to be able to report several of the "talked of" and "contemplated," as commenced, with improved prospects in all connections. It would be a more pleasing task to write up a more glowing and prosperous state of affairs, but we do not find the facts to justify it; and when reliable appearances and active operations do not sustain cheering statements, we shall reserve them until general or special prosperity settles upon us. But withal, there is no feeling of despondency manifest in any direction, as "everybody" seems to enjoy a comforting hope that it is merely a matter of time, when piles of bricks, mortar, lumber, and building materials generally, will be seen upon the greater number of the streets of this city, and not only all present labor find employment, but necessities require the Macedonian cry to other parts of the country: "Come over and help us."

Bay Windows.

It is safe to say that San Francisco has within its limits a greater number of bay windows than can be found in any other city in the world, containing an equal or comparative number of buildings. Only a small proportion of the resident buildings erected within the past twenty years are destitute of the bay window feature, and within the past ten years scarcely any, except the very cheap and ordinary class of tenements, where the extra cost and expense of bay windows prevented their adoption; while hotels, lodging houses, and many buildings erected for office and business purposes, are adorned with bay window projections, the "heavy business structures" alone forming the exception.

The semi-octagon shaped are the more numerous, and by far outnumber all other forms combined, although the "square bay" is at present growing in favor, in connection with the large and more expensive class of edifices.

We have always advocated the adoption of bay windows upon three special grounds; first, external appearances; second, interior conveniences; and third, their sanitary advantages.

In regard to the first proposition, they certainly furnish a prominent feature in house construction upon which architects may display great taste and skillful treatment; as no special rule or law of architecture, except that of harmony and consistency controls their delineation. They are something to be handled and treated at the pleasure of those planning them, and may be made beautiful or hideous, according to the skill and ability of the architect. It must be admitted, however, that while there are many beautiful examples of bay windows in this and adjacent cities, there are also many ill-shaped, over-adorned, and wretchedly poor conceptions. From the fact that they are numerous, and nearly every carpenter has worked on bay window constructions, the sentiment largely prevails in mechanical circles that the erection of bay windows is a simple matter, and that every man who "understands his business" as a carpenter or contractor is qualified to build them; hence, to a certain extent, a similarity of styles prevails, as in such cases those mechanics who prate about their competency to construct bay windows without plans always repeat something that they have seen or worked upon, and in so doing, constructions wholly unsuited to the style and character of the building upon which they are placed are likely to follow. In addition to this, some architects are exceedingly faulty in their conceptions, and sometimes design very ugly affairs, and instead of beautifying these failures produce bad effects.

It requires good judgment and refined taste to produce a "handsome bay window," but where these are exercised, beauty is obtained, and buildings which otherwise would appear plain and monotonous in unbroken lines and finishes, may be rendered elegant and ornamental.

In reference to the second proposition but few persons will contend that they do not increase internal conveniences. They certainly increase facilities for sight-seeing and distant views, and afford cozy corners for loving hearts to discuss love matters and future prospects in life; and in the retired alcoves of bay windows, thousands of pledges of love have been given and received, and the destinies of life agreed upon.

The third proposition—their sanitary advantages, contains both force and reason, and is well sustained by fair and conclusive arguments. It is a well understood fact that women and children, and sometimes men, "like to look out of windows"; and if any special view is desired, in cases where there are no bay windows, the sash is raised, and the head of the party desiring to see more than can be seen with the window closed, is thrust out. Ordinarily this is injurious, as it subjects the party so acting to a strong current of air by the difference in the temperature of the external and internal atmospheres, if from no other cause; and if the system is heated by exercise or otherwise, or the party is enfeebled by ailments of any sort, and the pores of the skin open, the injurious effect is greatly increased. It is unquestionably a fact that hundreds of thousands of people have "caught their death of cold" by opening windows and extending their heads and shoulders through the open apertures, sometimes remaining until "chilled through" by the draught. There is no practice more injurious, nor any more condemned by medical men, than that of persons exposing themselves to sudden draughts of wind, and sitting in proximity to open windows. In this regard bay windows are certainly to be desired, and must be classed as sanitary in character. But at this point an objectionable feature obtrudes itself, and one which should always be guarded against by architects, builders, and owners; and that is the common neglect practiced in not making bay windows as nearly air-tight as possible. In all cases, particularly in frame buildings, the projections and angles involve the necessity for numerous horizontal, angle, and butt joints, through which a large amount of air finds ingress; and if care and caution be not exercised in providing against its inlet, a constant current of air pours in through the cracks, joints, etc., of the internal finishes, productive of injury to any one coming in contact with it. Hence the necessity of

sheathing behind the finishes with tongued and grooved lumber, and making all parts as nearly air-tight as possible.

But, all things considered, bay windows when properly constructed are beautifying, convenient, and healthful adjuncts to buildings; and although we have seen thousands, and designed many hundreds of them, we not only favor their continued use for reasons given, but would not build for our own use without introducing bay windows wherever their adoption would add to our personal comfort.

Architecture in the Early Days.

"When Julius Cæsar invaded Britain, he was informed that the inhabitants of Kent, and some other parts in the South, had at that time begun to build houses a little more substantial and convenient than those they had at first. The first step toward this improvement seems to have been that of daubing the wattled walls of their houses with wet clay on both sides, for the purpose of making them more solid and warm. The Germans used for this purpose a kind of pure, resplendent earth, of different colors, which had an appearance of rude painting at a distance; and hence, perhaps, the custom of painting landscapes on the outside of the walls of houses had its origin; such are still to be seen in the Netherlands, and in some cantons in Switzerland. But the Gauls and Britons at this period preferred rather to whitewash the clay after it was dry, with white chalk; and instead of straw, they thatched their houses with marsh-reeds or rushes, a much better security against the weather.

"The ornamental and useful science of architecture had been greatly improved by the Romans, after their invasion of this country under Julius Cæsar, B. C. 55; but many examples of which were afterward destroyed by the barbarous Anglo-Saxons. The following event will show the striking contrast then existing between the architecture in Britain and that in Rome. When Caractacus, the primitive British monarch, who had been taken captive, and sent in triumph to Rome, was passing through its streets and saw the splendid palaces, he expressed his astonishment that people possessing such magnificent edifices at home should envy him his humble cottages in Britain. The first colony of Romans, on their settlement in Britain, was planted at Camalodinrum, (Colchester) as early as the fiftieth year of the Christian era, and when it was destroyed, only eleven years afterward, by the Britons, in revenge for the cruel treatment of Boadicea, Queen of the Iceni, in Suffolk, it was then a large and well built town, embellished with statues, pagan temples, theatres, baths and other public structures. From many circumstances, however, it appears that these buildings, like the early provincial theatres of the Romans, from which they had been designed, were chiefly of wood, this material being then abundant in Britain, till the time of Julius Agricola, who firmly established the dominion of the Romans in Britian, and governed it during the sieges of Vespasian, Titus and Domitian.

"Architecture, from the time of Agricola, A. D. 80, when he had subdued the whole or greater part of the Island, up to the middle of the fourth century, flourished greatly in this country. The same taste for the convenient, substantial and ornamental buildings which had long prevailed in the Roman provinces, was now introduced into Britain. The country, therefore, from this time, abounded with well built towns, forts and stations. The Anglo-Romans, however, it is supposed, did not erect many stone edifices in Britain; for if they had, it is not probable the stones would have perished or been applied to other purposes. Factitious bricks and tiles were generally used, which are still to be met with at their principal stations, as at St. Albans, Caster, near Yarmouth, Colchester and Exeter, where they had brick kilns. The spirit of building which was first introduced and encouraged by the Romans, so much improved the taste and increased the numbers of British artists, that in the third century this Island became celebrated in that respect. Even the Emperor Constantius, father of Constantine the Great, when he rebuilt the city of Autun, in Gaul, A. D. 296, was chiefly furnished with workmen from Britain.

"Not long after this enlightened period, architecture and the accompanying arts, which had been brought from Rome, began to decline; and after the final departure of the Romans from Britain, A. D. 448, the Roman style was abandoned, and immediately succeeded by that called Saxon or rather, Saxo-Roman. Some of the private villas and public edifices of the Romans were so well built and cemented, that they might have resisted all the ravages of time, and remained to this very day, had they not been willfully destroyed by internal commotions.

"The palace of the King of Wales, where the nobility and wise men assembled for making laws, was made of wood, and was called the "White Palace," because the walls were woven with wands, which had the bark peeled off. By the laws of Wales, whoever burnt or destroyed the King's hall or palace was obliged to pay *one pound and eight pence* beside one hundred and twenty pence for the destruction of the adjoining buildings, eight in number, namely, the *dormitory, kitchen, chapel, granary, bake-house, storeroom and the clay house.* This is certainly a sufficient proof of the meanness of the buildings.

"When Alfred the Great came to the throne, in the ninth century, and paid a visit to Rome, he became enlightened, and soon formed the liberal design of adorning his dominion in certain districts with more elegant structures. But to accomplish this, he was obliged to bring many of his artizans from foreign countries, such as masons, carpenters, glaziers, and painters. Now, though we find that some buildings of more substantial materials had been erected during this reign, still even the city of London, which he built, was actually constructed of the same fragile materials as those which had been employed by his predecessors; and though he encouraged the arts and sciences, built several palaces, and founded the university of Oxford, yet those very buildings, strange as it may appear, were actually constructed of wood, and covered with straw."

The Plainness of Expression

Used in some of the articles which have appeared in this Journal, has led some to think that they partake of severity in certain directions. Be this as it may, there have been truth, force, and defence in every line that we have written; and we propose to continue to deal plainly with all matters and subjects, keeping ourselves always upon the defensible side of every question. We very well understand that soft and gentle expressions arouse no resentful feelings, and that palliating and excusing references to great and small wrongs please, where presentations of undeniable facts give offense and make enemies. We have no desire to give offense to any one; but if offense can be avoided only by the withholding of honest convictions, and the sacrifice of plain but correct statements, then let offenses be the rule; as we shall certainly neither curtail nor restrain our sense of right by palliating or temporizing expressions. There exists no desire on our part to transcend any rules of fairness and justice even toward enemies; and certainly in matters where all personal considerations are entirely out of sight, and the discussion or review hinges solely upon the merits or demerits of the thing discussed or reviewed, it is no less than rank injustice to charge severity of language in the offensive sense of the term.

As the case stands, we appreciate the opportunities at command, and rejoice in the freedom enjoyed; and shall write upon and review all matters and subjects upon their respective merits, leaving it free to others to differ with us, and offering the columns of this Journal for the publication of dissenting views from those who entertain them, provided that recognized proprieties of language and expression are observed.

Our aim is to correct wrongs, improve defects, and develope and unfold the good, instructive, and useful in all connections. If during the few remaining years, at most, that remain of our pilgrimage on earth, we succeed in a small degree in elevating and improving the practices of the profession we have so long and fondly followed, and in correcting some of the parasitic irregularities which have grown upon and crept into mechanical pursuits, we shall have done well; and feel that we have completed a triumph for the dissolving hour of life, when mortality shall yield to the inevitable, and sink away into the better, grander, and more glorious light of that life which shall end only when the Almighty architect of worlds, planets, and infinities shall quit His throne of power and glory, and cease to exist as GOD OVER ALL.

California Fleas.

We are sorry and not sorry that these lively little tormentors, which have gained San Francisco almost world-wide notority as the head quarters of fleadom, are becoming conspicuously less numerous. Like the aborigines of the country, they appear to be passing away before the "march of civilization"; or their dissemination may be accounted for upon the hypothesis that as they multiply more rapidly in sandy localities, the "sand lots" of San Francisco may have been their head quarters, until the veritable Dennis took possession, and poured forth his disgraceful blasphemies and tirades of abuse, which together with the bad blood and worse whiskey brought upon the premises was more than even the vigorous fleas could endure. If so, it is to be regretted that the little fellows did not remain and multiply by tens of millions, to inflict their torment upon those who did so much to break down the prospects of our city and State, and inflict injuries from which only partial recovery is yet reached, and which will not be wholly recovered from for years to come. But we are not sorry that they are decreasing, as far as prudent respectable people and all children are concerned; for if there is vexation in any thing on earth, it is in one, ten or twenty fleas tickling, nipping and biting here, there and everywhere, sometimes two or half dozen pitching in at the same moment, upon several separate and distinct parts of the body, each seemingly more determined than the other to inflict the greatest amount of torment. And to increase the annoyance, the pesky little creatures always commence their more vigorous operations at the time when people have ceased from the active duties of the day, to enjoy the comfort of repose and rest. Their little eyes keep wide awake, and their nimble feet astir, when human kind would slumber, but often cannot;—for bite fast follows bite, and nip on nip is piled, until the spirit of sleep no longer seeks to pour its balmy influence into burning eyes, and the victims of flea tormentations can find no rest, except to arise from bed, whether the night be hot or cold, and by entire change of garments, a bath, or the free use of flea powder, an advantage is secured. Again, the fleas of California have no sentiment of devotion, for they ply their nippers alike upon saint and hypocrite, while upon bended knees, human hearts are lifted in prayer; and it is a trying ordeal for human nature to melt away in humble supplication to the Deity, and feel no spirit of revenge upon the flea or fleas at work upon various parts of the body. If this sacrilegiousness was confined to that class of devotionalists who pursue the forms and ceremonies of worship, while in life, practices and examples they perpetuate acts that would be disdained by others who never bend the knee in prayer, nor claim to be more than "worldlings,"—we should pray that redoubled energy might be given to every flea that lives, or ever may live, to inflict their soverest torment. But as the blood of *saints* has always been sought after during times of persecution, it may be possible that even the California flea is imbued with the same spirit, and inflict more punishment upon the truly righteous than upon those who, in the language of Holy Writ, are without "whitened sepulchers, but within, full of dead men's bones."

Still, fleas in California are not so numerous as they used to be, and in time they may become like our earth quakes—distributed all over the world, with only an occasional appearance in San Francisco.

A mechanic that is always in a hurry is incapable of doing good honest work. The excitable man who is always "flying around," and whose tools are never at hand when wanted, does not amount to much; he may be busy all day, and apparently—in fact, does—work hard and seems to get over a great deal of ground, but what he does do is neither fine nor substantial. The cool, calm workman, who allows himself neither to be driven nor persuaded to do more than a solid day's work is the man who leaves his impress on each piece of work he turns out, and a hundred years hence it may be found as good and as solid as the day he completed it; but where! Oh, where! will be the work that was thrown together at the same date by the man who was always "flying around?"—*Builder and Woodworker.*

IT IS estimated that the Postal Card has diminished the sale of writing paper $12,000,000 annually in the United States.

A Word of Warning—Wooden Outside Ladders.

Of late years, almost every house of moderate character erected has been provided with outside ladders made of wood, as a means of ascent to roofs. Some of these have been carefully made, and will do service as long as the wood of which they are constructed remains sound. But even the best of them are not of a permanent character, as wood exposed to all weather, hot and cold, wet and dry, will not withstand the effects of the elements for many years, and are therefore risky affairs. But the majority of them are hastily made, frequently of sappy wood liable to quick decay—and indifferently secured to the building by nails toed into the rustic. They all answer a present purpose, but as sure as the sun shines and planets pursue their journey through limitless space, the life of one or many human beings will demonstrate their impractibility for long service; particularly those which are indifferently made and secured. We shall not be surprised to read the announcement at any moment in the daily papers, that A, B, or C, in attempting to reach the roof of his house, fell to the ground and was badly mangled, or killed outright; cause, "one of the rounds of the outside ladder had rotted, or the nails gave way, and he fell backward to the ground." This is a reasonable possibility at any time, and after a few persons have lost their lives in this manner, greater precaution than temporarily made wooden ladders will be provided for safe ascent to roofs.

When made of wood they should always be firmly secured to the building, by *strong iron straps and bolts*, with a *strong face band up and down the uprights, well nailed, secured or bolted over the rounds.*

The safer plan, however, would be to make them of iron, and secure them with iron bolts and bands to the houses. And the day will come when the putting up of wooden outside ladders will be prohibited by city ordinance, but not until a few lives have been lost in the manner stated.

We do not anticipate that this word of caution will produce any effect in reference to those treacherous constructions, as people generally turn a deaf ear to all admonitions and warnings, and await demonstration of the fearful result prognosticated, before they become convinced of the real facts of the case. So it will be in this matter.

Injustice Toward Architects.

There is, perhaps, not a single practicing architect in this city who has not suffered loss of business, through adverse and unjust reports. In the discharge of their professional duties, they assume the position of middle-men between conflicting interests, and are generally made the "scape-goat" for sins commited on either one or both sides; provided misunderstandings of any character occur. If all "goes well and smoothly," and the architect secures and enjoys the confidence of all parties, the situation is rendered pleasant, and the engagement terminates advantageously, with kind words all around. But if, with the same parties in the engagement, disputes and differences arise, growing out of over-exactions on the part of the owner, or neglects, omissions, and departures from the plans and specifications by the contractor, the architect necessarily is made a party to the contest, and, whatever his decision may be, the party against whom the decision may operate, in nine out of ten cases, conceives or forces the conclusion that injustice has been done; and hard statements, often without the shadow of support by fact, follows. If the owner happens to be the offended party, then, as far as his influence extends, every other owner is informed of the incompetency, unfairness, etc., etc., of the architect, and if the contractor is the defeated contestant, then the worst possible statements that can be invented are spread around in all directions, and the offending architect is torn to pieces, simply because in the discharge of his duties he may have followed his own judgment as to the rights and equities of some matter forced upon him by the acts of the very party or parties falsifying and persecuting.

The system of injustice thus practiced assumes tenfold aggravation from the fact that not twice in one hundred cases is the architect afforded an opportunity to defend himself. The statements made against him are *ex parte*, and shaped and framed to suit the purposes and premises of those determined upon revenge for conceived injuries; and when revenge—the spirit of "getting even"—inspires a man's thoughts and words, pure truthfulness "outs but a sorry figure" in the case. And although the common rule of right and fairness gives to every man the right of defense before condemnation issues, such acknowledged right is but seldom accorded to architects, who are adjudged and condemned upon the mere statement of individuals to whom he may have given offense. And it is the easiest matter imaginable to offend some people by opposing their views, or in any manner defeating their purposes, however much in error they may be. Like the Cyclopean giants of the dark ages, they have practically *"but one eye set in the center of their foreheds,"* with which they can see but one thing, or in one direction—self and selfish interests. And the man who dares to exercise his own judgment, in opposition to such one-eyed creatures, seldom fails to receive all that tongues controlled by no acknowledged principle of right can inflict.

We do not claim more than average human virtues for those engaged in architectural pursuits, nor plead that positive and actual wrongdoings on the part of architects should be palliated or excused; but we do contend against the far too common practice which prevails against them, in the misrepresentations asserted, sometimes by owners who have been unable to control and use them in overreachings for more or better than the basis of existing agreements demand, and contractors who indulge in falsifying, simply because the architect may have refused to violate his personal sense of right and integrity, by allowing and accepting materials and workmanship not in harmony with the plans and specifications; or perchance, in refusing to allow and audit unreasonable and excessive bills for extra work and materials.

In this connection we suggest, as a matter for the consideration of the members of the *Society of Architects*, about being formed in this city, whether the integrity and elevation of the profession might not be protected and improved, by the adoption, as a rule, to hear and decide all *proper causes* of complaint reported to the Society from and after its permanent organization, made by either owners or contractors, implicating members of the profession in questionable and unprofessional practices or wrongdoings, to the end that proper rebuke or vindication be extended to every member, and expulsion and exposure imposed upon those whose malpractice may warrant such a course. By this, a higher standard of personal integrity would be secured, and the affiliating portion of the profession sustained upon the basis of individual rectitude and proficiency.

If the legal, medical and other professions, and our courts of justice deem it necessary and justifiable to enforce stringent rules upon those assuming responsible duties, does not a co-equal duty rest upon men who assume to perpetuate and delineate the great science of architecture, as handed down to us by those great men who have given to the world so many beautiful illustrations of their grand conception in temples of worship; in structures whose chambers have resounded with the eloquence of patriots, senators and sages; monuments in memory of great and good men; in palaces and dwelling-places alike for monarchs, kings, conquerors, and peasants: all illustrating that while in humanity the same as other men, in their revealments of beautiful things in the science of architecture, they are worthy of all the honors which each succeeding day has meted out to those who deserve, and by their works have won the admiration of the world.

THERE has been a great outcry because a number of people lost their lives at the burning of the Madison Street tenement house, through the alleged carelessness or ignorance of a plumber. The fact is, that many more lives than were here lost are sacrificed every week, through the ignorance and carelessness of men called plumbers; and yet some people doubt the propriety of attempting to legislate to control those who work at this trade. More bodily injury is caused in New York City alone from defective plumbing than is produced in the whole United States from steam-boiler casualties; and yet engineers must be licensed, and plumbers are free from any control. The inference is plain.—*Sanitary Engineer.*

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**

Manual Labor vs. Machinery.

A fear seems to have taken possession of many minds lest by the inventive genius of man machinery might be produced capable of accomplishing so much as to remove the necessity for manual labor, and, as a consequence, lest they themselves should be unable to gain a livelihood. So widely have these views been imbibed, even by men of apparent intelligence of a comparatively high order, that they have advocated in strong terms, upon the rostrum and elsewhere, the desirability of not only banishing new machinery, but inventors also. This opposition has made the path of those who possessed sufficient enterprise to lead them to devise new methods, and new apparatus to effect the same, not only unpleasant, but generally unprofitable; whereas, if mankind had been more fully endowed with wisdom and brotherly love, a very different state of affairs would have existed.

The cry that "the rich are growing richer and the poor are growing poorer," as the result of new machinery, is not true. In fact, the use of machinery is constantly improving the condition of all classes; and the advance that has been made by the masses toward a higher civilization the last half century is simply wonderful, and is due to the development of the inventive genius of man. That there is not an equitable distribution of the products of the farm, the mine, and the manufactory cannot be denied. But where does the fault lie? Not with the machinery either of old or new design.

Let the reader look back with the aid of proper books of reference to the condition of things fifty years ago. At that time it was beginning to dawn upon the minds of the most progressive that steam railways were a possibility; but everything for the next ten years was in the crudest possible condition, no more like the comfortable railways of to-day than a two-wheeled springless ox-cart is like a modern pleasure carriage. Then travel was slow and tedious for all classes, rich or poor. Now the rich, and the poor as well, may travel five hundred miles comfortably in twenty-four hours. Then the mails were weeks in going and coming where days will now suffice. Then telegraphs were unknown, but now any one may send a message to a friend hundreds of miles away for a few cents, and get an answer almost at once, whereas it formerly required several days if not weeks for a message to go and come. These and hundreds of other improvements that have been inaugurated are open to the use and benefit of all, and have greatly lessened the most arduous work of the laboring man, while the necessity for his services is in no wise less now than formerly. In fact, it may be truly said that the day laborer can now enjoy many things that the wealthiest men half a century ago could not obtain. In looking at the facts that history presents, no man of a sound and candid mind can honestly deny that, whatever of seeming or *temporary* disadvantages may have fallen upon manual labor, by the introduction of machinery, all have been enabled to reap great advantage. The conclusion must, therefore, be that the introduction of new and improved methods of production should be encouraged, and that there is no real ground of warfare between manual labor and machinery, demagogues to the contrary notwithstanding.—*New York Mercantile Journal.*

Citric Acid to Render Water Safely Potable.

DR. Langfeldt has experimented with a number of substances in studying their applicability to the purpose of destroying microscopic life in drinking water. The most striking results he obtained from citric acid. Upon the addition of one part to two thousand, life ceased in from one-half to two minutes. Microscopic examination showed that those forms of animalcula supplied with a thick epithelial covering are not affected by this dilute citric acid, but only those with delicate coatings. But as the greater portion of these unwelcome visitors belong to the latter category, and as those of the former variety are visible to the naked eye, a solution of the above-mentioned strength (1:2000) will suffice as a safeguard. In about one minute after their death, these animalcula settle to the bottom of the vessel containing the water, and can always be found in abundance in the sediment. As the solution of citric acid spoils so readily, Langfeldt advises that it should be freshly prepared every day. —*The Druggists' Circular* for March.

The Aggressive Chinamen.

Like the locust of Egypt, they swarm everywhere—everywhere where their presence is tolerated—and always with disastrous effect upon the labor interests of the civilized races among which they spread themselves. The privations, humiliation, and degradations to which the masses of the Celestial Empire have been compelled to submit for centuries, have created and established among them moral and social conditions and habits of the most revolting character, such as render the thought of reducing any portion of the white race to their level of life is simply horrible to contemplate; and as must always be the state of the case in over-populated countries, the supply of workers and toilers so far exceeds the demand for labor, that millions of them barely exist, without the practical enjoyment, or the slightest knowledge, of the commonest comforts known to the laboring classes of America and other enlightened countries. This fact may appeal to the sympathies of humanitarians in the common acceptation of the term, but there can be no intelligent argument brought forward why we, as a people, should seek to improve the condition of the Asiatic races by the humiliation and degradation of millions of our own and kindred nationalities. It is a false and cruel sympathy that proposes, or in effect seeks to change, alleviate, and improve the condition of one class of human beings, by imposing wrongs, hardships, and injuries upon others without their consent. It is right and proper that those possessing the means and opportunities for helping others, should of their abundance, their wealth of mines, or gold, give freely to those whose lot is less favorably cast than is enjoyed by the masses of our own favored land. But there is neither command, authority, nor obligation resting upon us, as a nation, to remove the bulwarks of protection from our own laboring classes, that our workshops, fields, farms, and the avenues of all industries may be filled with those who have not a single domestic, moral, social, or religous sentiment in harmony with our own.

Admitting for argument's sake, that an All Wise God controls the allotments of nations, and fixes the dwelling places of men on earth; if so, then, to the Chinaman he has appointed a goodly land, where the golden rays of bright sunshine fall, and silvery moonbeams chase away the darkness of night; where the early and the latter rains descend, and the earth yields its grain and fruits in due season. And if with all these heaven-appointed advantages, coequal with the average of nations, the people of that land have brought upon themselves, if not to the Lords, Emperors, and Imperial conclaves—yet to the masses—a condition of things repulsive and disgusting to every better sentiment and principle of life, as understood and enjoyed by the people of our own country, it can be no less than absurd fanaticism and madness to permit, much less to invite and induce, a people so thoroughly averse to our very principles of life and government to come among us, and in time consume us. For, as certain as the locusts of Egypt consumed and destroyed the vines and trees of that historical country, just as certain will the swarming of Chinamen to America consume and destroy the blessings now enjoyed by its laboring and operative classes in all departments of manufacture and productions of every kind. And they being peculiarly an imitative and not an inventive people, the avenues of skilled and artistic labor will be encroached upon; and in time, *by our own permission as a people*, and because we neglect or refuse to protect our own interests, and preserve the beautiful heritage, this goodly land which *God has given to us*, from the idolatry, contaminations, and defilements which invariably accompany the presence of Chinamen wherever they find unmolested foothold in any country, America will become Chinaized in a thousand senses; while the Chinamen, who will finally outnumber the white race two to one, or more, will become Americanized in nothing, where Oriental ideas will serve their purposes. And, as must naturally be the case, they will secure the right of citizenship, and their votes within the next one hundred years will determine who shall be our Chief Executive and law-makers, and the entire political and business interests of the United States will be shaped by a race who at present are considered but little better than semi-barbarians. The predictions expressed may be pooh-poohed by a great many; but no thoughtful man, laying aside every other consideration, and viewing the matter in its broadest and natural possibilities, can reach any other conclusion. When the anti-slavery agitation first began in this country, the leaders were set down as brainless fanatics: yet the abolition of slavery has become a fixed fact; and this result was secured with but little intelligent aid from the enslaved negroes, who were watched and controlled by their masters, and every facility looking to their freedom and equality before the law carefully guarded against. And so in numerous instances in the history of nations, results have come to pass which, in their incipiency, were considered impossible. And it is no stretch of imagination to presume that, if the Chinamen are permitted to come in unrestricted numbers to this country, aided by a host of fanatics who are always ready to embrace causes which will give play to their peculiar notions, they will soon be able to establish themselves as a power in the land, by which every political and laboring interest must be disastrously affected.

If we are charged with prejudice against Chinamen, it is a prejudice of thirty years' experience with the class against whom we contend. We have witnessed their manner of life, their customs, their vices, their distant departures from all cultured and advanced mental and moral improvement, their Josh worship and heathenish idolatry, their perfidy and dishonesty, their filth and inhumanity even towards their own kind—and in a word, their entire opposition to everything known to the American people as refinement, or any desire to make themselves better than what they are—a defiled, corrupt, and degraded people, without a single impulse in harmony with those cherished by the white race. And we affirm, as a fact, that no intelligent mind, enjoying a proper knowledge of the people against whom we write, and being uncontrolled by personal interests or unwise sympathies, can do otherwise than entertain a prejudice like our own—fully justified and sustained by facts. That there are qualifying cases we will not dispute; but as a grand whole, the views presented are absolutely correct in reference to Chinamen.

It is So.

There are people in this world, and always have been, and will be until the end of time, who render themselves unhappy by their own acts. It is possible for all men to diminish or prevent the disappointments and sorrows which gather and fall thick and fast around the pathway of some, and to increase the comforts and pleasures of life, by manly determination and efforts to resist the evil, and courage and perseverance in the attainment of the good. There are limits, bounds, and opportunities within which all happyfying and comforting things may be found; and those who seek these, and pursue the God-appointed paths of goodness in their purest sense, secure to themselves sunbeams to illume the journey of life: while those who refuse submission to the better order of things that rule in human life, and keep themselves aloof from the better influences, have no good or sufficient reason to complain that their "lot is hard," or that "the world is cold and cheerless." If people would have it so, nine-tenths of the discomforts of life might be removed. "We make most of our own miseries," is an old and true saying; and yet only a small proportion of our race realize the fact, or accept the mandates of inevitable things—the "soul that sinneth, it shall die." This declaration of inspiration is broad in its meaning, not being confined in its comprehensions to the after-life that awaits us all; but men who sin away privileges and opportunities for good while they remain on earth, suffer the loss of rich blessings and joys which are reaped by the prudent and upright, who find the *solid comforts* in that peace of mind which follows right purposes in all things, and a soul full of kindness and ennobling human love and goodness.

It is always safe to assume that somewhere in your waste pipes there is, or may be, a place where sewerage has lodged. It is well therefore, now and then, to take a pound of copperas, dissolve it in a gallon or two of warm water, and pour the solution down the waste pipe of your basin or sink. There is no better disinfectant, and it costs but little.—*Portland Transcript.*

Read It Again—Cold Feet.

In the April number of this journal an article appeared in relation to "COLD FEET," which has attracted considerable attention, as evidenced by the number who have addressed us communications, and sought personal interviews with us upon the subject.

"My house is the coldest place in San Francisco," has been a common expression, followed by, "Can anything be done to remedy the difficulty?" We refer our readers to the article mentioned for a careful repersual, as it contains suggestions and facts which should be observed by every person contemplating the erection of a building for either private or public uses or purposes. Too much care cannot be exercised in the prevention of the evil pointed out, and the saving of two or three per cent. in the total cost of a home for one's family, is simply absurd and unwise, when, by so doing, defects are permitted which forever afterward inflict punishment, and frequently cause sickness and death. The whole difficulty results from carelessness, or an improper understanding of correct methods of construction.

Sometimes persons of limited means are compelled to practice economies in the erection of a building, and to submit to curtailments which are hurtful in their effects. But it would be wiser on the part of such parties to struggle on and husband resources until a sufficient sum can be accumulated to secure all that is necessary to a healthful home, however humble it may be. And those who can afford it, but who, from motives of penuriousness or willful omissions and neglect pay no attention to essential matters in house construction, deserve all the consequences which attend such neglects and cogerness to economize cost.

It is well understood in reference to all other matters—whether merchandise, cloths, horses, carriages, jewelry, or other purchasable thing, that to obtain those that are of good quality and real merit, fair and sometimes large prices must be paid. But as a rule, when the matter of house-building is in hand, the whole study is to lessen cost. If, perchance, a qualified architect is consulted, the first thing sought to be impressed upon his attention, is to save expensiveness wherever it is possible, and to "get up a nice, convenient building," with a limit in dollars and cents fixed as near the cost of the "raw materials" as possible. But more generally the first move made is to find the *cheapest architect*, who, when found, proves always to be the cheapest only in one sense, and that is, that very cheap things of any sort posses but little real worth or value. And this disposition to save, to economize, is made the rule, which, in nine cases out of ten, ends unsatisfactorily, and results in defects which are ever afterward annoyances.

It requires good architectural and mechanical skill to build a house properly, and not until owners realize and recognize this fact will house-building reach reasonable perfection. And so long as cheapness, and the engagement of the cheapest parties to plan and erect buildings, is the prevailing sentiment, just so long will unnecessarily cold, uncomfortable, and ill-arranged buildings be the rule.

One Way of Determining Who Prepare Lunches.

In a recent professional experience we were asked by a lady client to "go and see the lot," intended for improvement. Upon reaching the premises and commenting upon the excellence of location, pleasing surroundings etc., etc., we were rather surprised to hear its owner question the propriety of improving it by the erection of a private residence, with the remark that the lot was a fine one, and the neighborhood genteel, but there was quite an objection, after all.

Asking to be informed as to the character of the objection, the answer was given: Well, the neighbors are not fashionable; they do not set lunches at noon, and it is such a privation to be debarred the enjoyment of those little social pleasures.

But, we inquire, not being acquainted with the families near by, how do you arrive at the conclusion expressed by your statement?

Oh, very nicely. I very frequently pass this way about lunch hour, and I have noticed that smoke never issues from any of the chimneys at the proper hour for preparing lunches.

The Seventh Abomination.

Too late for notice in our February number, the *Evening Bulletin* published its "Seventh of Series." This time it has not as usual selected its COPY from the prevailing and generally accepted modern idea of house planning, but like the fiction writers of the age, has hunted up something conceived to be more romantic in character, calling it a *chalet*. There is a fitness in the adaptation, as the facts in connection with the "Seventh of Series" raise the query whether the architecture of the herdsmen of Switzerland, in the planning of their *mountain huts*, has been improved to any considerable extent in the hands of the *Bulletin's protege*, everything considered. As to the plan presented, we pass it without comment, leaving those who desire to adopt it with its many objectionable features, rather than something more modern and practical, with greater convenience at a less *actual cost*, to do so.

But so long as the journal named continues and seeks to mislead by representations which contain more of *absolute falsity* than truth, we shall feel compelled, in the interest of the Architectural profession, and honest mechanical operations, to notice and rebuke such misrepresentations in plain language.

There is no journal published anywhere which is more persistent in its claims to journalistic virtues and truthfulness than the *Evening Bulletin*; and yet, during the "last ten months," it has continued a series of presentations, particularly in figures, in which the element of truthfulness and correctness has been conspicuously absent. In no one instance, in connection with its "copyrighting enterprise," has the truth been stated in reference to *actual cost and values*. This is the principal feature of the issue raised by us in this connection, and we defy the contradiction by practical tests of the statements heretofore and now made by us upon this point. And if such statements have been and are correct, then one of two responsibilities rests upon those who are continuing these misrepresentations; either they are materially, if not totally, ignorant of the subject matter handled by them, or if possessing a fair or full understanding, then the charge of wilful and deliberate falsification for purposes not stated must apply.

The editorial referring to number seven exposes a superabundance of obliviousness to actual facts, and boldness of assertion, which would not be indulged in by any one enjoying a right degree of appreciation for correct statements. The statement that the "series is supplying a want which has been long felt in California and other Pacific Coast communities," is an unjustified asumption, not sustained by facts, for the reason that there has not been a single acceptable feature in house building shown in either of the "Seven of Series," which has not been repeated thousands of times, nor a single original idea, except those which have been conspicuously so in their absurdities and ridiculousness.

Again it states: "It consequently frequently turns out, that the dwellings erected from plans thus prepared, (by inexperienced hands) are full of imperfection, of awkward arrangements, of gross violation of the simplest sanitary rules," etc. This is true so far as it relates to plans being made by inexperienced hands; but any claim on the part of the *Bulletin* that its "enterprise" has tended to remedy this condition of things, is simply amusing to nine-tenths of the competent architects and builders upon this coast. There has been nothing published of late years which is less appreciated, more condemned, or more strongly denounced, than this copyright enterprise and its *protege*, by those better qualified by professional education and experience to comprehend the real *de*merits of the case.

The consistent journal further says: "San Francisco and other California towns and cities are full of what may be termed architectural make-shifts and expedients." So far, true; and why? Because owners have anticipated the example of the *Bulletin*, and engaged as architects, parties who have possessed but a shadow of architectural abilities, and as a consequence, "architectural abnormities" have followed. And so long and whenever such a course is pursued by owners of real estate, or newspaper publishers, they may anticipate failure every time.

But the most presumptuous thing stated is the following: "Since the *Bulletin* began the publication of the series, there has been in a certain sense a boom in building."

It would be difficult to construct a sentence in the English language more decidedly hypothetical in character. It is not true that there has been, in any *legitimate sense*, a boom in building in San Francisco during the past ten months. All that can be truthfully stated is, that there has been and is an improvement upon the conditions resulting from the "Sand Lot" and New Constitution setbacks and disasters. And although many hundred of carpenters and brick masons have left for other places since 1877, thus decreasing the supply of labor in this city, still, with the exception of a month or so last fall, when all *first-class* carpenters and masons were employed, and inferior men found engagements, there has not been a time within the period stated when the supply of labor has not been greater than the demand. The assumption of the journal named, that its "copyrighting enterprise" has furnished a particle of influence in creating a "boom in building," or in any degree stimulated the *moderate* building activities which exist, is just as consistent and truthful as to assert that the snow storms of the Eastern States have caused the overflow of the Sacramento River. And the intimation that this bettered state of things began with, and grew out of, this fanatical digression of a daily journal from its legitimate line of operation, is as ridiculous as it is preposterous and fanciful.

We have heretofore commented plainly upon the "specifications" (1) which have appeared with the first six of series, and have nothing better to say for No. 7. They are insufficient and indefinite in numerous respects, and in some particulars absurd in their requirements. With the Swiss herdsman's "mountain hut" as the subject *copy*, the Swiss feature might be still further appropriately applied by denominating the specifications the *Swiss cheese document*, full of large holes, such as are termed in mechanical parlance "loop holes," through which, figuratively, a six-yoke ox-team might drive. Our contemporary, perhaps unwittingly, properly stated the case by saying that these "architectural make-shifts are the result of inexperienced hands." And it might with safety have added that thousands of owners of property have been victimized by entrusting their interests into the hands of frothy praters—parties whose *arrogance* and *cheekiness* constitute the larger share of their architectural abilities. It is sufficient to make a giraffe bark, to read in connection with this plan farce, about the "*gross violation of the simplest sanitary rules.*" Pray inform us where may be found the first original suggestion upon this point in connection with either of the seven of series, or any provision bearing upon sanitary science which is not common and familiar to every *ordinary* plumber and builder? It is a very evident fact that those who seek no further information upon matters sanitary than is found in connection with this "series" business, will have no reason to fear prostration of the mental faculties from an excess of knowledge.

When one's watch "gets out of order" and he *does not know* what is required in the way of repairs, he takes it to the watch maker and says "FIX it." The smashed up, worn out, or broken down buggy or wagon is generally taken to the wagon maker, with the injunction FIX it. And so in matters generally, where the possessor or owner *fails to understand the necessities of the case*, the order is given as a cover-all, FIX it. The term "fix" or "fixed" is repeated ten times in No. 7. "Fix" has, of course, a special meaning; but used in this general sense, its application is subject to the interpretation of the party fixing the thing to be *fixed*, unless the character of fixing is defined by special understanding, etc., etc.; and *fix* in specifications is about on a par—useful to *cover points*, when explicit definitions or explanations are not convenient or understood. The sum stated as the estimated cost of No. 7, like each and all of the other six of series, is an inexcusable perversion of facts; and we challenge the parties making the statement to a practical test of the truth of the assertion made. Forty per cent. added will not cover the actual cost, following the fair interpretation of the specifications. And the absurdities of the figures given can be accounted for upon but one or both of two grounds—first, purpose to deceive and mislead; or a positive ignorance of true costs and values of buildings.

In a little more than two years, the United Workmen of California have paid to the heirs of their deceased brothers the handsome sum of $214,000. That is a record to be proud of.—*American Machinist.*

A CLEAR CASE IN POINT.

We are in possession of the facts in connection with one of these *wretched "series" delusions*—No. 3.—A party with moderate means at command happened to gain possession of the paper containing No. 3, and he concluded to adopt it as a guide in building for himself a cheap residence, presuming that the statement of cost stated was somewhere near correct. Hoping to lessen the amount, he concluded to leave the kitchen unplastered and unfinished, leave out the bath-tub and fixtures, and the mantels, to have included which would certainly have added $200 to the cost; still, with all these omissions, and perhaps $100 more of the nonsensicals specified, the best that he could do was to submit to a contract of $1,350. And to further economize expenses, the house was simply plastered in the usual manner, instead of *plastering the walls and partitions internally*, as specified; and the usual custom was pursued in reference to the 2x4 rafters, instead of *spacing them* 16 *inches from centres, and bridging them with* 2x3-*inch herring-bone bridging*, as required by the specifications; and the 1½-inch *Oregon pine wall-strings specified* were substituted by the customary kind and thickness of lumber. Still the house which the party referred to was informed through the *Bulletin*, by its wise man of plans and figures, could be built in the manner specified for the sum of $1,140, cost between $1,500 and $1,600—an excess of about 35 per cent. over the estimate sum. And right here and again we repeat that there has not been, and cannot be, one of either of the seven of series erected and completed at or near the sum of estimates respectively. And it is simply infamous on the part of a journal claiming respectability to continue an enterprise which contains so much error, and so little of merit and correct representations; and it is more than shameful upon the part of one calling himself an architect to be a party to a series of such errors.

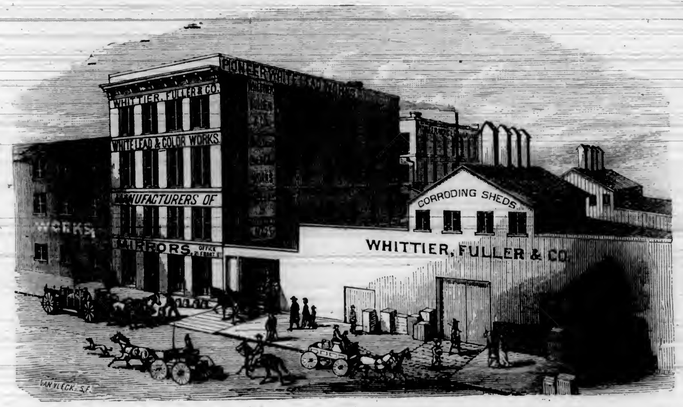
The effect is bad all around: creative of erroneous impressions on the part of the owners, who, even though such statements may be made by incompetent parties, naturally incline to the supposition that such things are possible of realization; and to effect the result desired very questionable measures are sometimes resorted to. And, on the other hand, it tends to demoralize mechanical operations, and throw work into the hands of incompetent and irresponsible parties, who have neither pride in their work, nor care whether the bills for materials and labor used are paid or not. And we fail to comprehend the general benefit to be derived from the breaking down of right prices, and the encouragement of irresponsible men to undertake contracts at amounts simply ruinous in character; for it is a certain fact that no sane man, with honest intention and fair information, would touch either of the seven of series at the prices given as their true cost. All of which goes to show that the enterprising evening journal has undertaken a business about which it knows nothing, and which, for its own credit's sake, it should abandon forever, and confine itself to its legitimate business of *news* publication.

One of the largest manufacturing establishments in the country is now being built by the Pullman Car Company, at a cost of $1,000,000. It is located near Chicago, on the Illinois Central Railroad, three-fourths of a mile south of the Kensington station. About 150 acres is included in the site, and will be laid out in drives and lawns, with two attractive parks. The structures will be of brick and stone, having 1,130 feet of front. They will consist, first, of the two parallel buildings for erecting shops 690 feet long and 87 feet wide. The central section, containing the offices and store-rooms, will be 100½ feet long and 100 feet deep, three stories high, with a tower rising to a height of 146 feet. In the rear of this will be a series of four buildings, covering an aggregate frontage of 1,047 feet, with a general depth of 200 feet, forming the wood machine shops, blacksmith shops, varnish-room, repair shops, and two erecting shops. Still back of these will be another shop, 474x86 feet, a dry kiln 150x80, and a foundry 120 feet front and 200 feet deep.—*American Machinist.*

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**

The Industries of the Pacific.

PIONEER WHITE LEAD WORKS.



We hope from this on to see California take a better position as a manufacturing center than she has hitherto done. Rates of interest have materially lessened, the country is more thickly populated, means of transportation have increased and improved, and the State has "waked up" generally. It takes time to develope an industry of any magnitude, and it also takes a good deal of money and energy to start it. But we have the energy and the money, and now is the time. There are a good many small towns throughout the State where no particular impulse has been given to any branch of business that can be widely developed, and in any one of these places, if a start were made and a manufactory established, it would not be long before that establishment would make a name for itself if managed properly.

It has been noticed that when a certain kind of manufacturing industry has started up in a small town or new settlement, it finally becomes the prominent industry of the town. Hundreds of Eastern and European towns indicate this. Some are famous for iron work, some for cars, some for clocks, knives and forks, toys, brass goods, firearms, etc. We haven't any of these places in this State, yet they are the localities which make other communities prosperous.

Most of the manufacturing industries of the State of any magnitude are concentrated in San Francisco. The small towns have been left out in the cold, and have to depend on the agricultural or mining communities near them for support; and, unfortunately, the result has been that very few of the interior towns are in as prosperous a condition as they should be.

Manufacturing establishments of any character must first acquire a local reputation, and this will in time spread as their business increases. San Francisco is now mainly noted, from a manufacturing point of view, for its mining machinery and its woolen goods. The woolen mills have sent their products all over the coast. The foundries, from small beginnings, have multiplied in number and in usefulness, and have for some years manufactured mining machinery, not only for the Pacific Coast States and Territories, but for Mexico, Japan, and South America. California has set the pattern for mining machinery of all kinds, making it better and cheaper than elsewhere.

Of course, there are many other branches of manufacture in this great city which are prosperous and flourishing, and which are gradually becoming better known, and principally among these is the one whose title occupies the head of this page. This industry occupies a first place on account of its being a true home production. And for its inception, and the grand results that have followed, we are indebted to the enterprise of Messrs. Whittier, Fuller & Co.

The PIONEER WHITE LEAD is of a superior quality, and is not excelled by any make, either in the Old or New World. It is made from pig lead mined on the Pacific Coast, (California and Nevada) is ground in the linseed oil crushed in San Francisco, corroded in pots and with chemicals of local manufacture, and in the most critical sense is a *Pacific Coast production*. In *color* it is *pure white;* it is *finer ground* than that made elsewhere; is *easily washed*, and has *great covering properties*.

Heretofore the pig lead produced on this Coast has all been shipped East or to Europe, and our *white lead* there manufactured and returned to us, at a cost of *two freights*, which is now saved to us by the institution of the *Pioneer Lead Works*.

The process they employ is no patent, or new fangled process, but is the one invented and introduced by the Dutch, many years ago. An explanation of this process may interest our readers.

The pig lead is first melted in a large iron kettle, from which it flows in a molten stream on to an endless chain of peculiar pattern, on which are formed circular plates of lead of about three-eighths of an inch thick; these are placed in earthen pots, nearly similar to our common flower pots, in the bottom of which is placed a certain quantity of acetic acid; these pots, so charged, are then placed in bins or stacks, 20 feet wide, 24 feet long, and 20 feet high, each capable of holding forty tons of pig lead, prepared for corrosion. Under and above, and surrounding these pots, is a heavy body of tan bark, from which a heat is generated, and the chemical action commences.

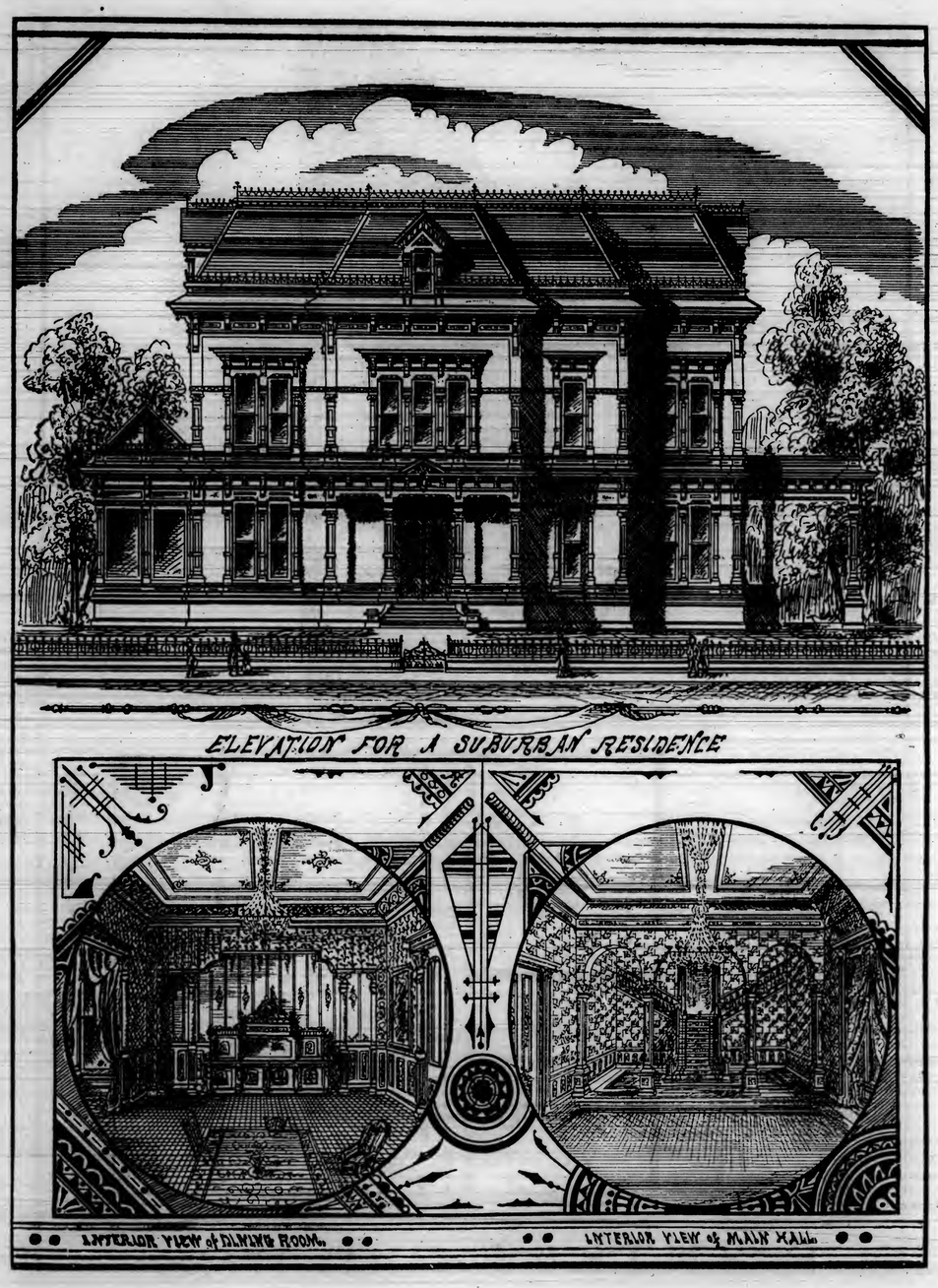
It takes from three to four months to complete this action, or to corrode the lead, when the pots are removed from the stacks, and the contents are seen transformed from the dull, blue lead, to a crystaline, pure white substance, which is easily crushed by pressure of the fingers. From the pots it is conveyed to the main buildings, where it is thrown into the hoppers, and thence by automatic action is taken from stage to stage of the different separation and washing processes, and from floor to floor, until it is poured in a stream on to the drying pans, which occupy the entire upper story, (fifth floor) where the temperature is maintained at 145 deg. Fahrenheit; thence it is conveyed to the crushers and oil mills, and packed for market.

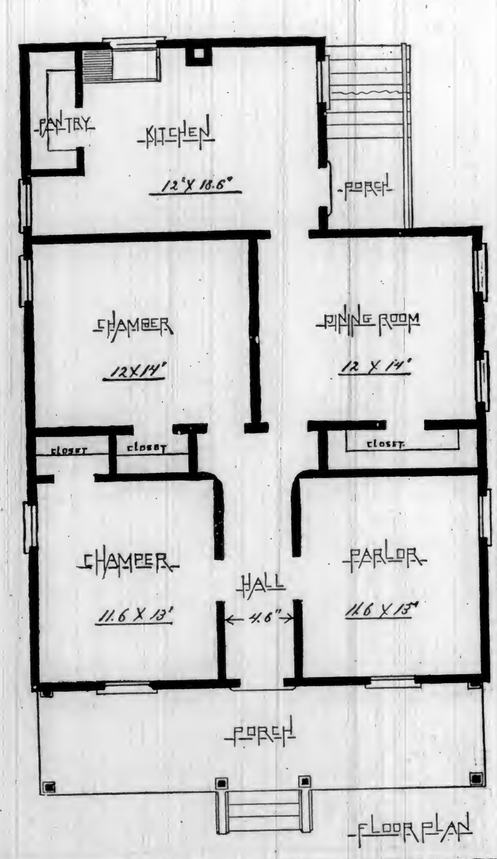
The production at present is 150 tons monthly, and the capacity of the works is double that quantity, without further additions. Without question it is, in all its appointments, equal to any establishment of the kind in the United States. The factory buildings cover a space of 46x275 feet, and the corroding sheds 92x275.

In addition to the White Lead Factory, they grind all kinds of

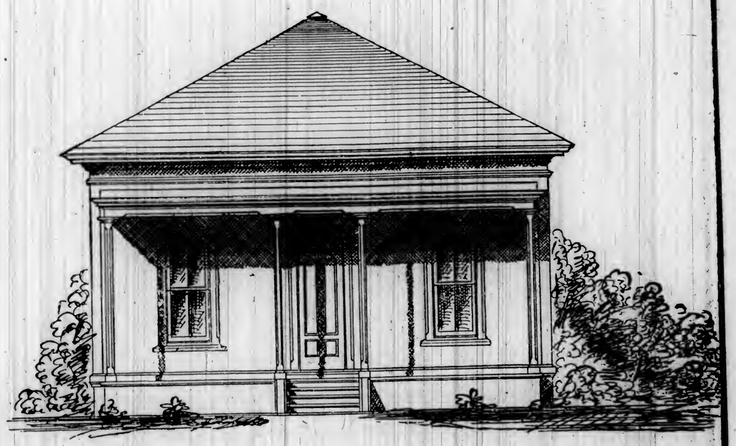
PAINTERS' COLORS,

And their Productions are Unequalled for PURITY AND FINENESS

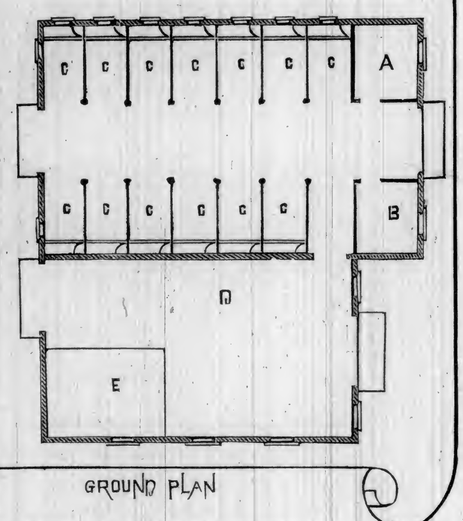




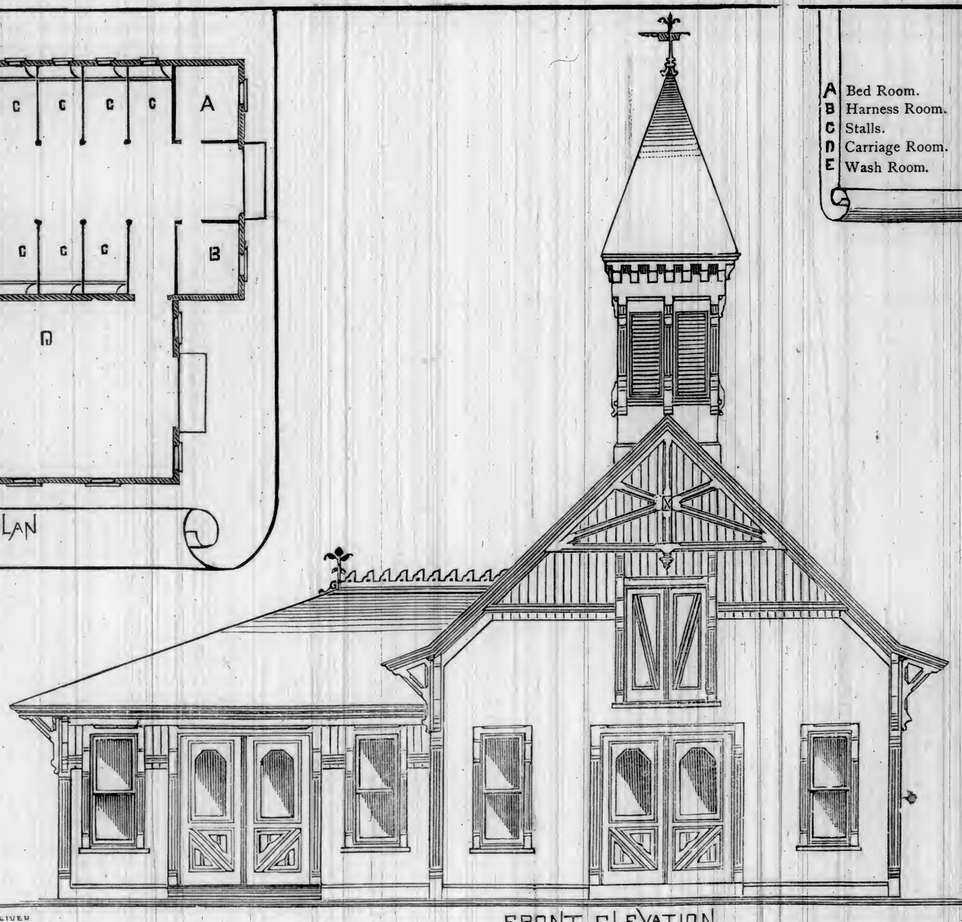
FLOOR PLAN



ELEVATION 'A'



GROUND PLAN



FRONT ELEVATION

The Aggressive Chinamen.

Like the locust of Egypt, they swarm everywhere—everywhere where their presence is tolerated—and always with disastrous effect upon the labor interests of the civilized races among which they spread themselves. The privations, humiliation, and degradations to which the masses of the Celestial Empire have been compelled to submit for centuries, have created and established among them moral and social conditions and habits of the most revolting character, such as render the thought of reducing any portion of the white race to their level of life is simply horrible to contemplate; and as must always be the state of the case in over-populated countries, the supply of workers and toilers so far exceeds the demand for labor, that millions of them barely exist, without the practical enjoyment, or the slightest knowledge, of the commonest comforts known to the laboring classes of America and other enlightened countries. This fact may appeal to the sympathies of humanitarians in the common acceptation of the term, but there can be no intelligent argument brought forward why we, as a people, should seek to improve the condition of the Asiatic races by the humiliation and degradation of millions of our own and kindred nationalities. It is a false and cruel sympathy that proposes, or in effect seeks to change, alleviate, and improve the condition of one class of human beings, by imposing wrongs, hardships, and injuries upon others without their consent. It is right and proper that those possessing the means and opportunities for helping others, should of their abundance, their wealth of mines, or gold, give freely to those whose lot is less favorably cast than is enjoyed by the masses of our own favored land. But there is neither command, authority, nor obligation resting upon us, as a nation, to remove the bulwarks of protection from our own laboring classes, that our workshops, fields, farms, and the avenues of all industries may be filled with those who have not a single domestic, moral, social, or religous sentiment in harmony with our own.

Admitting for argument's sake, that an All Wise God controls the allotments of nations, and fixes the dwelling places of men on earth; if so, then, to the Chinaman he has appointed a goodly land, where the golden rays of bright sunshine fall, and silvery moonbeams chase away the darkness of night; where the early and the latter rains descend, and the earth yields its grain and fruits in due season. And if with all these heaven-appointed advantages, coequal with the average of nations, the people of that land have brought upon themselves, if not to the Lords, Emperors, and Imperial conclaves—yet to the masses—a condition of things repulsive and disgusting to every better sentiment and principle of life, as understood and enjoyed by the people of our own country, it can be no less than absurd fanaticism and madness to permit, much less to invite and induce, a people so thoroughly averse to our very principles of life and government to come among us, and in time consume us. For, as certain as the locusts of Egypt consumed and destroyed the vines and trees of that historical country, just as certain will the swarming of Chinamen to America consume and destroy the blessings now enjoyed by its laboring and operative classes in all departments of manufacture and productions of every kind. And they being peculiarly an imitative and not an inventive people, the avenues of skilled and artistic labor will be encroached upon; and in time, *by our own permission as a people*, and because we neglect or refuse to protect our own interests, and preserve the beautiful heritage, this goodly land which *God has given to us*, from the idolatry, contaminations, and defilements which invariably accompany the presence of Chinamen wherever they find unmolested foothold in any country, America will become Chinaized in a thousand senses; while the Chinamen, who will finally outnumber the white race two to one, or more, will become Americanized in nothing, where Oriental ideas will serve their purposes. And, as must naturally be the case, they will secure the right of citizenship, and their votes within the next one hundred years will determine who shall be our Chief Executive and law-makers, and the entire political and business interests of the United States will be shaped by a race who at present are considered but little better than semi-barbarians. The predictions expressed may be pooh-poohed by a great many; but no thoughtful man, laying aside every other consideration, and viewing the matter in its broadest and natural possibilities, can reach any other conclusion. When the anti-slavery agitation first began in this country, the leaders were set down as brainless fanatics: yet the abolition of slavery has become a fixed fact; and this result was secured with but little intelligent aid from the enslaved negroes, who were watched and controlled by their masters, and every facility looking to their freedom and equality before the law carefully guarded against. And so in numerous instances in the history of nations, results have come to pass which, in their incipiency, were considered impossible. And it is no stretch of imagination to presume that, if the Chinamen are permitted to come in unrestricted numbers to this country, aided by a host of fanatics who are always ready to embrace causes which will give play to their peculiar notions, they will soon be able to establish themselves as a power in the land, by which every political and laboring interest must be disastrously affected.

If we are charged with prejudice against Chinamen, it is a prejudice of thirty years' experience with the class against whom we contend. We have witnessed their manner of life, their customs, their vices, their distant departures from all cultured and advanced mental and moral improvement, their Josh worship and heathenish idolatry, their perfidy and dishonesty, their filth and inhumanity even towards their own kind—and in a word, their entire opposition to everything known to the American people as refinement, or any desire to make themselves better than what they are—a defiled, corrupt, and degraded people, without a single impulse in harmony with those cherished by the white race. And we affirm, as a fact, that no intelligent mind, enjoying a proper knowledge of the people against whom we write, and being uncontrolled by personal interests or unwise sympathies, can do otherwise than entertain a prejudice like our own—fully justified and sustained by facts. That there are qualifying cases we will not dispute; but as a grand whole, the views presented are absolutely correct in reference to Chinamen.

It is So.

There are people in this world, and always have been, and will be until the end of time, who render themselves unhappy by their own acts. It is possible for all men to diminish or prevent the disappointments and sorrows which gather and fall thick and fast around the pathway of some, and to increase the comforts and pleasures of life, by manly determination and efforts to resist the evil, and courage and perseverance in the attainment of the good. There are limits, bounds, and opportunities within which all happyfying and comforting things may be found; and those who seek these, and pursue the God-appointed paths of goodness in their purest sense, secure to themselves sunbeams to illume the journey of life: while those who refuse submission to the better order of things that rule in human life, and keep themselves aloof from the better influences, have no good or sufficient reason to complain that their "lot is hard," or that "the world is cold and cheerless." If people would have it so, nine-tenths of the discomforts of life might be removed. "We make most of our own miseries," is an old and true saying; and yet only a small proportion of our race realize the fact, or accept the mandates of inevitable things—the "soul that sinneth, it shall die." This declaration of inspiration is broad in its meaning, not being confined in its comprehensions to the after-life that awaits us all; but men who sin away privileges and opportunities for good while they remain on earth, suffer the loss of rich blessings and joys which are reaped by the prudent and upright, who find the *solid comforts* in that peace of mind which follows right purposes in all things, and a soul full of kindness and ennobling human love and goodness.

It is always safe to assume that somewhere in your waste pipes there is, or may be, a place where sewerage has lodged. It is well therefore, now and then, to take a pound of copperas, dissolve it in a gallon or two of warm water, and pour the solution down the waste pipe of your basin or sink. There is no better disinfectant, and it costs but little.—*Portland Transcript.*

Read It Again—Cold Feet.

In the April number of this journal an article appeared in relation to "COLD FEET," which has attracted considerable attention, as evidenced by the number who have addressed us communications, and sought personal interviews with us upon the subject.

"My house is the coldest place in San Francisco," has been a common expression, followed by, "Can anything be done to remedy the difficulty?" We refer our readers to the article mentioned for a careful reporusal, as it contains suggestions and facts which should be observed by every person contemplating the erection of a building for either private or public uses or purposes. Too much care cannot be exercised in the prevention of the evil pointed out, and the saving of two or three per cent. in the total cost of a home for one's family, is simply absurd and unwise, when, by so doing, defects are permitted which forever afterward inflict punishment, and frequently cause sickness and death. The whole difficulty results from carelessness, or an improper understanding of correct methods of construction.

Sometimes persons of limited means are compelled to practice economies in the erection of a building, and to submit to curtailments which are hurtful in their effects. But it would be wiser on the part of such parties to struggle on and husband resources until a sufficient sum can be accumulated to secure all that is necessary to a healthful home, however humble it may be. And those who can afford it, but who, from motives of penuriousness or willful omissions and neglect pay no attention to essential matters in house construction, deserve all the consequences which attend such neglects and eagerness to economize cost.

It is well understood in reference to all other matters—whether merchandise, cloths, horses, carriages, jewelry, or other purchasable thing, that to obtain those that are of good quality and real merit, fair and sometimes large prices must be paid. But as a rule, when the matter of house-building is in hand, the whole study is to lessen cost. If, perchance, a qualified architect is consulted, the first thing sought to be impressed upon his attention, is to save expensiveness wherever it is possible, and to "get up a nice, convenient building," with a limit in dollars and cents fixed as near the cost of the "raw materials" as possible. But more generally the first move made is to find the *cheapest architect*, who, when found, proves always to be the cheapest only in one sense, and that is, that very cheap things of any sort possess but little real worth or value. And this disposition to save, to economize, is made the rule, which, in nine cases out of ten, ends unsatisfactorily, and results in defects which are ever afterward annoyances.

It requires good architectural and mechanical skill to build a house properly, and not until owners realize and recognize this fact will house-building reach reasonable perfection. And so long as cheapness, and the engagement of the cheapest parties to plan and erect buildings, is the prevailing sentiment, just so long will unnecessarily cold, uncomfortable, and ill-arranged buildings be the rule.

One Way of Determining Who Prepare Lunches.

In a recent professional experience we were asked by a lady client to "go and see the lot," intended for improvement. Upon reaching the premises and commenting upon the excellence of location, pleasing surroundings etc., etc., we were rather surprised to hear its owner question the propriety of improving it by the erection of a private residence, with the remark that the lot was a fine one, and the neighborhood genteel, but there was quite an objection, after all.

Asking to be informed as to the character of the objection, the answer was given: Well, the neighbors are not fashionable; they do not set lunches at noon, and it is such a privation to be debarred the enjoyment of those little social pleasures.

But, we inquire, not being acquainted with the families near by, how do you arrive at the conclusion expressed by your statement?

Oh, very nicely. I very frequently pass this way about lunch hour, and I have noticed that smoke never issues from any of the chimneys at the proper hour for preparing lunches.

The Seventh Abomination.

Too late for notice in our February number, the *Evening Bulletin* published its "Seventh of Series." This time it has not as usual selected its COPY from the prevailing and generally accepted modern idea of house planning, but like the fiction writers of the age, has hunted up something conceived to be more romantic in character, calling it a *chalet*. There is a fitness in the adaptation, as the facts in connection with the "Seventh of Series" raise the query whether the architecture of the herdsmen of Switzerland, in the planning of their *mountain huts*, has been improved to any considerable extent in the hands of the *Bulletin's protege*, everything considered. As to the plan presented, we pass it without comment, leaving those who desire to adopt it with its many objectionable features, rather than something more modern and practical, with greater convenience at a less *actual cost*, to do so.

But so long as the journal named continues and seeks to mislead by representations which contain more of *absolute falsity* than truth, we shall feel compelled, in the interest of the Architectural profession, and honest mechanical operations, to notice and rebuke such misrepresentations in plain language.

There is no journal published anywhere which is more persistent in its claims to journalistic virtues and truthfulness than the *Evening Bulletin*; and yet, during the "last ten months," it has continued a series of presentations, particularly in figures, in which the element of truthfulness and correctness has been conspicuously absent. In no one instance, in connection with its "copyrighting enterprise," has the truth been stated in reference to *actual cost and values*. This is the principal feature of the issue raised by us in this connection, and we defy the contradiction by practical tests of the statements heretofore and now made by us upon this point. And if such statements have been and are correct, then one of two responsibilities rests upon those who are continuing these misrepresentations; either they are materially, if not totally, ignorant of the subject matter handled by them, or if possessing a fair or full understanding, then the charge of wilful and deliberate falsification for purposes not stated must apply.

The editorial referring to number seven exposes a superabundance of obliviousness to actual facts, and boldness of assertion, which would not be indulged in by any one enjoying a right degree of appreciation for correct statements. The statement that the "series is supplying a want which has been long felt in California and other Pacific Coast communities," is an unjustified asumption, not sustained by facts, for the reason that there has not been a single acceptable feature in house building shown in either of the "Seven of Series," which has not been repeated thousands of times, nor a single original idea, except those which have been conspicuously so in their absurdities and ridiculousness.

Again it states: "It consequently frequently turns out, that the dwellings erected from plans thus prepared, (by inexperienced hands) are full of imperfection, of awkward arrangements, of gross violation of the simplest sanitary rules," etc. This is true so far as it relates to plans being made by inexperienced hands; but any claim on the part of the *Bulletin* that its "enterprise" has tended to remedy this condition of things, is simply amusing to nine-tenths of the competent architects and builders upon this coast. There has been nothing published of late years which is less appreciated, more condemned, or more strongly denounced, than this copyright enterprise and its *protege*, by those better qualified by professional education and experience to comprehend the real *de*merits of the case.

The consistent journal further says: "San Francisco and other California towns and cities are full of what may be termed architectural make-shifts and expedients." So far, true; and why? Because owners have anticipated the example of the *Bulletin*, and engaged as architects, parties who have possessed but a shadow of architectural abilities, and as a consequence, "architectural abnormities" have followed. And so long and whenever such a course is pursued by owners of real estate, or newspaper publishers, they may anticipate failure every time.

But the most presumptuous thing stated is the following: "Since the *Bulletin* began the publication of the series, there has been in a certain sense a boom in building."

It would be difficult to construct a sentence in the English language more decidedly hypothetical in character. It is not true that there has been, in any *legitimate sense*, a boom in building in San Francisco during the past ten months. All that can be truthfully stated is, that there has been and is an improvement upon the conditions resulting from the "Sand Lot" and New Constitution setbacks and disasters. And although many hundred of carpenters and brick masons have left for other places since 1877, thus decreasing the supply of labor in this city, still, with the exception of a month or so last fall, when all *first-class* carpenters and masons were employed, and inferior men found engagements, there has not been a time within the period stated when the supply of labor has not been greater than the demand. The assumption of the journal named, that its "copyrighting enterprise" has furnished a particle of influence in creating a "boom in building," or in any degree stimulated the *moderate* building activities which exist, is just as consistent and truthful as to assert that the snow storms of the Eastern States have caused the overflow of the Sacramento River. And the intimation that this bettered state of things began with, and grew out of, this fanatical digression of a daily journal from its legitimate line of operation, is as ridiculous as it is preposterous and fanciful.

We have heretofore commented plainly upon the "specifications" (1) which have appeared with the first six of series, and have nothing better to say for No. 7. They are insufficient and indefinite in numerous respects, and in some particulars absurd in their requirements. With the Swiss herdsman's "mountain hut" as the subject *copy*, the Swiss feature might be still further appropriately applied by denominating the specifications the *Swiss cheese document*, full of large holes, such as are termed in mechanical parlance "loop holes," through which, figuratively, a six-yoke ox-team might drive. Our contemporary, perhaps unwittingly, properly stated the case by saying that these "architectural makeshifts are the result of inexperienced hands." And it might with safety have added that thousands of owners of property have been victimized by entrusting their interests into the hands of frothy praters—parties whose *arrogance* and *cheekiness* constitute the larger share of their architectural abilities. It is sufficient to make a giraffe bark, to read in connection with this plan farce, about the "*gross violation of the simplest sanitary rules.*" Pray inform us where may be found the first original suggestion upon this point in connection with either of the seven of series, or any provision bearing upon sanitary science which is not common and familiar to every *ordinary* plumber and builder? It is a very evident fact that those who seek no further information upon matters sanitary than is found in connection with this "series" business, will have no reason to fear prostration of the mental faculties from an excess of knowledge.

When one's watch "gets out of order" and he *does not know* what is required in the way of repairs, he takes it to the watch maker and says "FIX it." The smashed up, worn out, or broken down buggy or wagon is generally taken to the wagon maker, with the injunction FIX it. And so in matters generally, where the possessor or owner *fails to understand the necessities of the case*, the order is given as a cover-all, FIX it. The term "fix" or "fixed" is repeated ten times in No. 7. "Fix" has, of course, a special meaning; but used in this general sense, its application is subject to the interpretation of the party fixing the thing to be *fixed*, unless the character of fixing is defined by special understanding, etc., etc.; and *fix* in specifications is about on a par—useful to *cover points*, when explicit definitions or explanations are not convenient or understood. The sum stated as the estimated cost of No. 7, like each and all of the other six of series, is an inexcusable perversion of facts; and we challenge the parties making the statement to a practical test of the truth of the assertion made. Forty per cent. added will not cover the actual cost, following the fair interpretation of the specifications. And the absurdities of the figures given can be accounted for upon but one or both of two grounds—first, purpose to deceive and mislead; or a positive ignorance of true costs and values of buildings.

In a little more than two years, the United Workmen of California have paid to the heirs of their deceased brothers the handsome sum of $214,000. That is a record to be proud of.—*American Machinist.*

A CLEAR CASE IN POINT.

We are in possession of the facts in connection with one of these *wretched "series" delusions*—No. 3. A party with moderate means at command happened to gain possession of the paper containing No. 3, and he concluded to adopt it as a guide in building for himself a cheap residence, presuming that the statement of cost stated was somewhere near correct. Hoping to lessen the amount, he concluded to leave the kitchen unplastered and unfinished, leave out the bath-tub and fixtures, and the mantels, to have included which would certainly have added $200 to the cost; still, with all these omissions, and perhaps $100 more of the nonsensicals specified, the best that he could do was to submit to a contract of $1,350. And to further economize expenses, the house was simply plastered in the usual manner, instead of *plastering the walls and partitions internally*, as specified; and the usual custom was pursued in reference to the 2x4 rafters, instead of *spacing them* 16 *inches from centres, and bridging them with* 2x3-*inch herring-bone bridging*, as required by the specifications; and the 1¼-inch *Oregon pine wall-strings specified* were substituted by the customary kind and thickness of lumber. Still the house which the party referred to was informed through the *Bulletin*, by its wise man of plans and figures, could be built in the manner specified for the sum of $1,140, cost between $1,500 and $1,600—an excess of about 35 per cent. over the estimate sum. And right here and again we repeat that there has not been, and cannot be, one of either of the seven of series erected and completed at or near the sum of estimates respectively. And it is simply infamous on the part of a journal claiming respectability to continue an enterprise which contains so much error, and so little of merit and correct representations; and it is more than shameful upon the part of one calling himself an architect to be a party to a series of such errors.

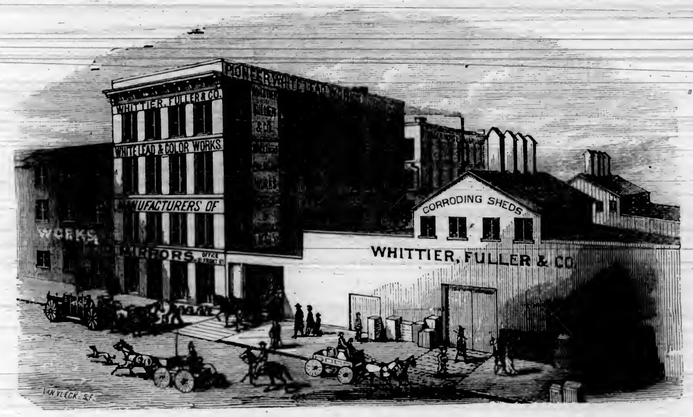
The effect is bad all around: creative of erroneous impressions on the part of the owners, who, even though such statements may be made by incompetent parties, naturally incline to the supposition that such things are possible of realization; and to effect the result desired very questionable measures are sometimes resorted to. And, on the other hand, it tends to demoralize mechanical operations, and throw work into the hands of incompetent and irresponsible parties, who have neither pride in their work, nor care whether the bills for materials and labor used are paid or not. And we fail to comprehend the general benefit to be derived from the breaking down of right prices, and the encouragement of irresponsible men to undertake contracts at amounts simply ruinous in character; for it is a certain fact that no sane man, with honest intention and fair information, would touch either of the seven of series at the prices given as their true cost. All of which goes to show that the enterprising evening journal has undertaken a business about which it knows nothing, and which, for its own credit's sake, it should abandon forever, and confine itself to its legitimate business of *news* publication.

One of the largest manufacturing establishments in the country is now being built by the Pullman Car Company, at a cost of $1,000,000. It is located near Chicago, on the Illinois Central Railroad, three-fourths of a mile south of the Kensington station. About 150 acres is included in the site, and will be laid out in drives and lawns, with two attractive parks. The structures will be of brick and stone, having 1,130 feet of front. They will consist, first, of the two parallel buildings for erecting shops 690 feet long and 87 feet wide. The central section, containing the offices and store-rooms, will be 100½ feet long and 100 feet deep, three stories high, with a tower rising to a height of 146 feet. In the rear of this will be a series of four buildings, covering an aggregate frontage of 1,047 feet, with a general depth of 200 feet, forming the wood machine shops, blacksmith shops, varnish-room, repair shops, and two erecting shops. Still back of these will be another shop, 474x86 feet, a dry kiln 150x80, and a foundry 120 feet front and 200 feet deep.—*American Machinist.*

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

The Industries of the Pacific.

PIONEER WHITE LEAD WORKS.



We hope from this on to see California take a better position as a manufacturing center than she has hitherto done. Rates of interest have materially lessened, the country is more thickly populated, means of transportation have increased and improved, and the State has "waked up" generally. It takes time to develope an industry of any magnitude, and it also takes a good deal of money and energy to start it. But we have the energy and the money, and now is the time. There are a good many small towns throughout the State where no particular impulse has been given to any branch of business that can be widely developed, and in any one of these places, if a start were made and a manufactory established, it would not be long before that establishment would make a name for itself if managed properly.

It has been noticed that when a certain kind of manufacturing industry has started up in a small town or new settlement, it finally becomes the prominent industry of the town. Hundreds of Eastern and European towns indicate this. Some are famous for iron work, some for cars, some for clocks, knives and forks, toys, brass goods, firearms, etc. We haven't any of these places in this State, yet they are the localities which make other communities prosperous.

Most of the manufacturing industries of the State of any magnitude are concentrated in San Francisco. The small towns have been left out in the cold, and have to depend on the agricultural or mining communities near them for support; and, unfortunately, the result has been that very few of the interior towns are in as prosperous a condition as they should be.

Manufacturing establishments of any character must first acquire a local reputation, and this will in time spread as their business increases. San Francisco is now mainly noted, from a manufacturing point of view, for its mining machinery and its woolen goods. The woolen mills have sent their products all over the coast. The foundries, from small beginnings, have multiplied in number and in usefulness, and have for some years manufactured mining machinery, not only for the Pacific Coast States and Territories, but for Mexico, Japan, and South America. California has set the pattern for mining machinery of all kinds, making it better and cheaper than elsewhere.

Of course, there are many other branches of manufacture in this great city which are prosperous and flourishing, and which are gradually becoming better known, and principally among these is the one whose title occupies the head of this page. This industry occupies a first place on account of its being a true home production. And for its inception, and the grand results that have followed, we are indebted to the enterprise of Messrs. Whittier, Fuller & Co.

The PIONEER WHITE LEAD is of a superior quality, and is not excelled by any make, either in the Old or New World. It is made from pig lead mined on the Pacific Coast, (California and Nevada) is ground in the linseed oil crushed in San Francisco, corroded in pots and with chemicals of local manufacture, and in the most critical sense is a *Pacific Coast production*. In *color* it is *pure white;* it is *finer ground* than that made elsewhere; is *easily washed*, and has *great covering properties*.

Heretofore the pig lead produced on this Coast has all been shipped East or to Europe, and our *white lead* there manufactured and returned to us, at a cost of *two freights*, which is now saved to us by the institution of the *Pioneer Lead Works*.

The process they employ is no patent, or new fangled process, but is the one invented and introduced by the Dutch, many years ago. An explanation of this process may interest our readers.

The pig lead is first melted in a large iron kettle, from which it flows in a molten stream on to an endless chain of peculiar pattern, on which are formed circular plates of lead of about three-eighths of an inch thick; these are placed in earthen pots, nearly similar to our common flower pots, in the bottom of which is placed a certain quantity of acetic acid; these pots, so charged, are then placed in bins or stacks, 20 feet wide, 24 feet long, and 20 feet high, each capable of holding forty tons of pig lead, prepared for corrosion. Under and above, and surrounding these pots, is a heavy body of tan bark, from which a heat is generated, and the chemical action commences.

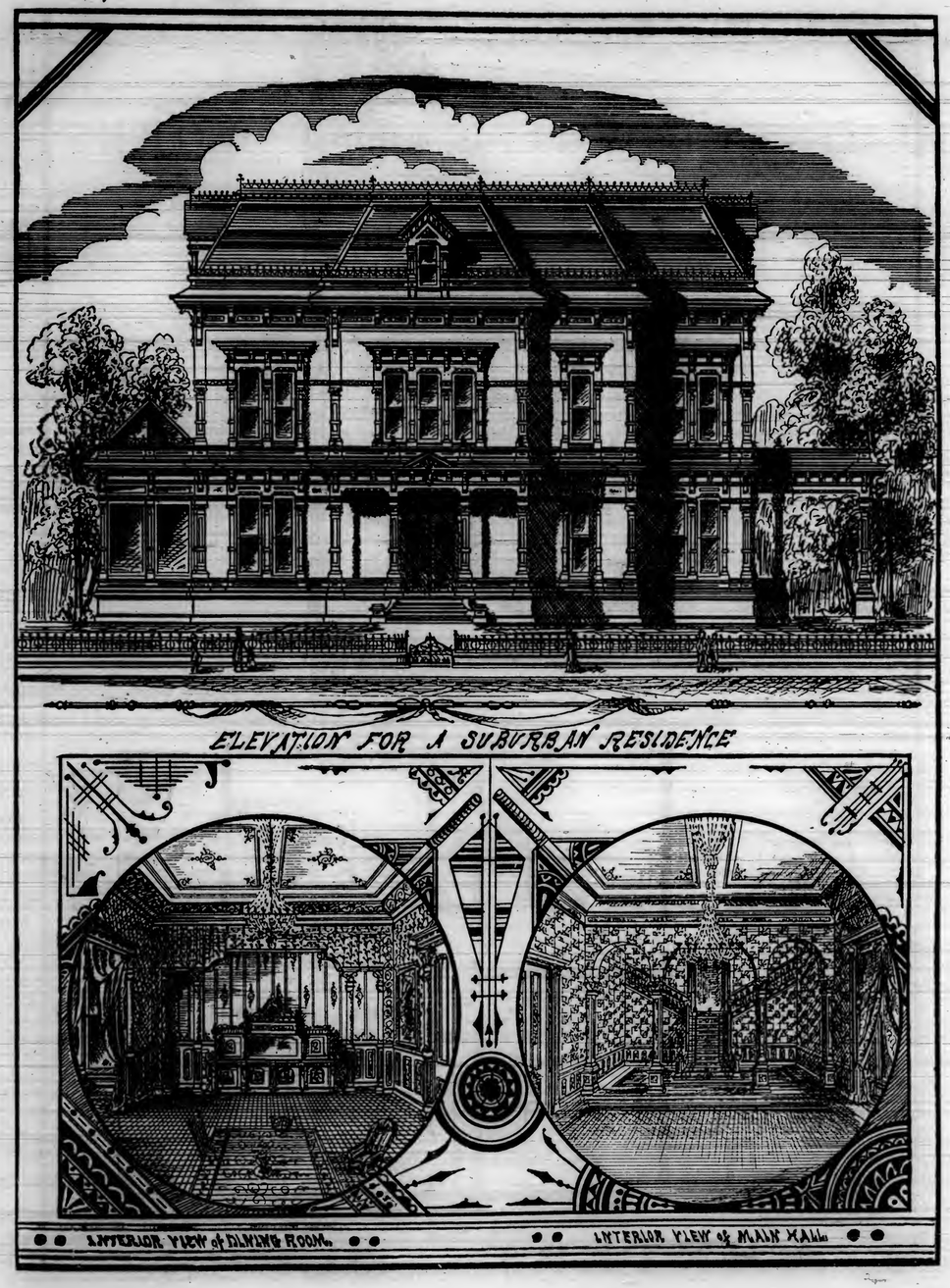
It takes from three to four months to complete this action, or to corrode the lead, when the pots are removed from the stacks, and the contents are seen transformed from the dull, blue lead, to a crystaline, pure white substance, which is easily crushed by pressure of the fingers. From the pots it is conveyed to the main buildings, where it is thrown into the hoppers, and thence by automatic action is taken from stage to stage of the different separation and washing processes, and from floor to floor, until it is poured in a stream on to the drying pans, which occupy the entire upper story, (fifth floor) where the temperature is maintained at 145 deg. Fahrenheit; thence it is conveyed to the crushers and oil mills, and packed for market.

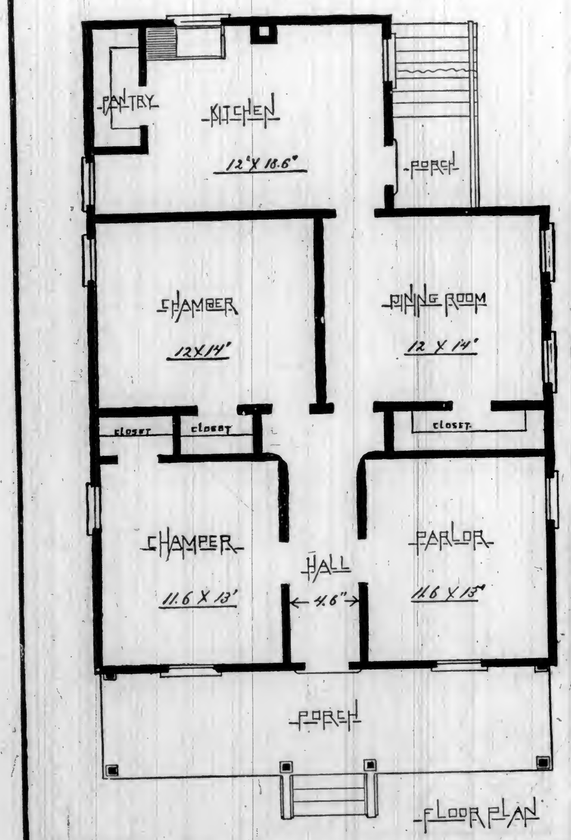
The production at present is 150 tons monthly, and the capacity of the works is double that quantity, without further additions. Without question it is, in all its appointments, equal to any establishment of the kind in the United States. The factory buildings cover a space of 46x275 feet, and the corroding sheds 92x275.

In addition to the White Lead Factory, they grind all kinds of

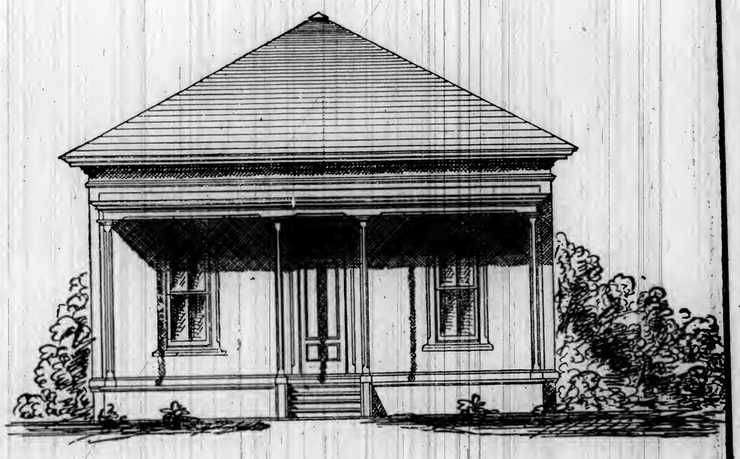
PAINTERS' COLORS,

And their Productions are Unequalled for PURITY AND FINENESS

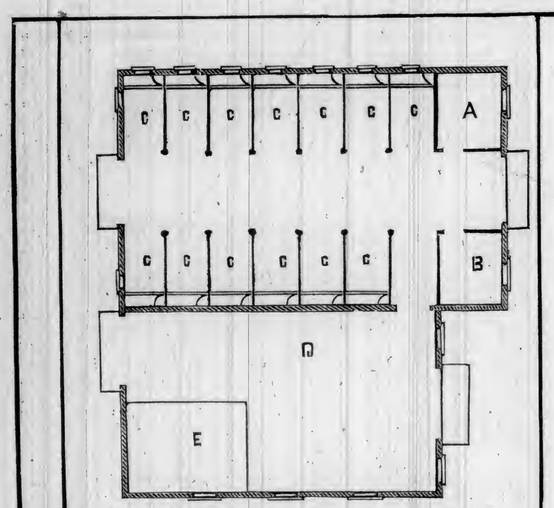




FLOOR PLAN

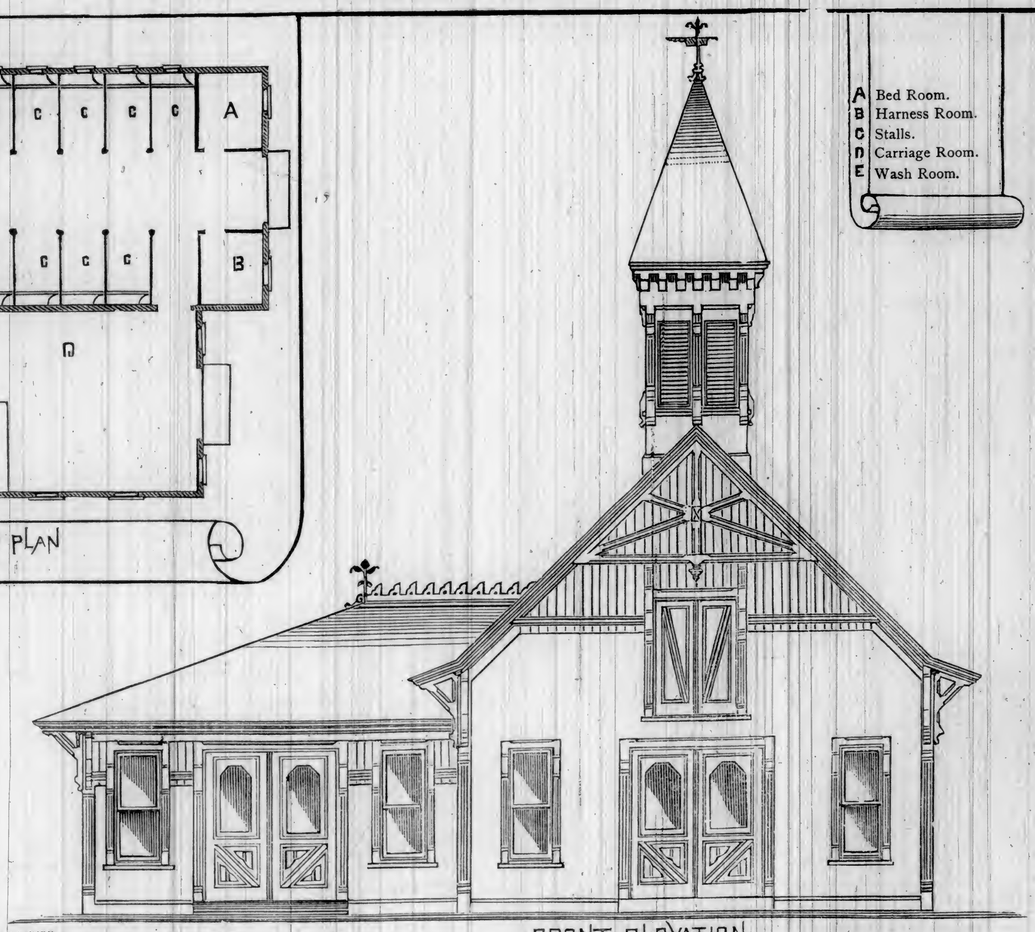


ELEVATION 'A'



GROUND PLAN

A Bed Room.
B Harness Room.
C Stalls.
D Carriage Room.
E Wash Room.



FRONT ELEVATION

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

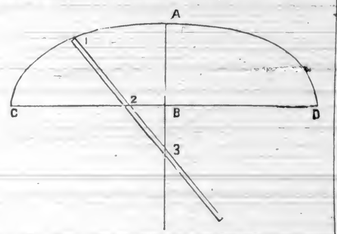
[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

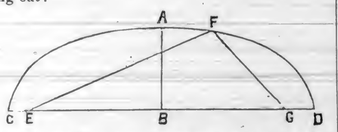
BUS. MAN. OF ARCHITECT.—Will you please illustrate a method for drawing the *half oval:* one that will apply to making an elliptic on a large gateway? PALO ALTO FARM.

ANS.—There are many methods by which the required curve can be made. One of the oldest, as well as simplest, we present below:



Let C D be a given distance, and A B a given height. Take a straight edge; from the end of this set off 1 3, equal to the distance C B, and again, set off 1 2, to equal A B. Now lay the straight edge on the line C D, with 1 at C. Then, with a pencil, make any number of points, all of which will be in the curve, by moving the straight edge, keeping 3 on the line A B, and 2 on the line C D.

Another simple way is represented by the adjoining cut:



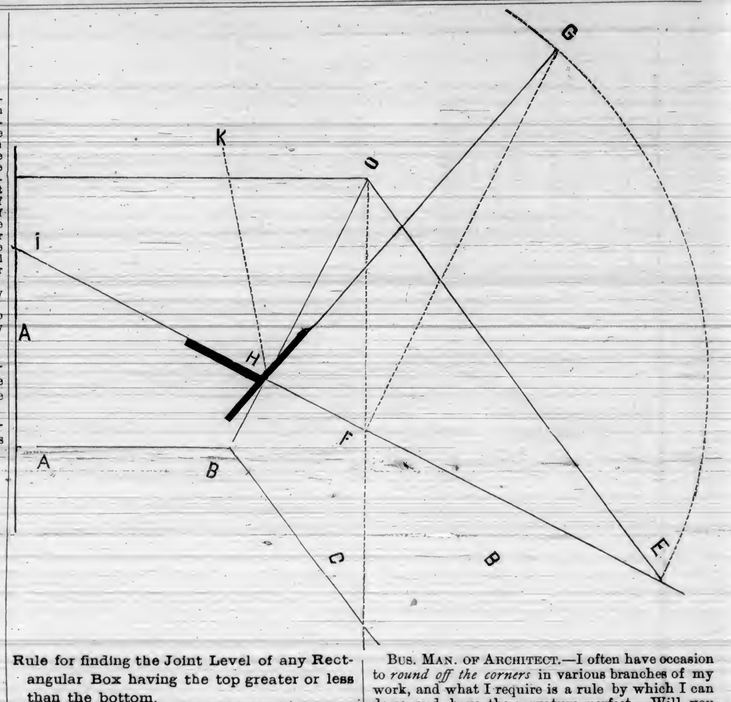
C D being any distance, A B any height. Mark two points on C D, as at E G, to correspond to the distance C B or B D, using A for the center. In these two points put a pin or nail. Tie a string at E, stretching it over the point A, and fastening at G. Now, with a pencil in which a groove has been cut, to prevent slipping, sweep the curve.

BUS. MAN. OF ARCHITECT.—What is the name and size of the largest sheet I can order of drawing paper? What is the difference between paper that is "hot pressed" and paper that is "cold pressed?"

B. R., VALLEJO.

ANS.—Uncle Sam; size 48x120 inches. The difference between the two is, that the former bears a fine, smooth, glossy surface, and is suitable for fine-line drawings; while the latter has a rough surface, and is more suitable for tinting and shading.

TO E. G.:—Having the diameter of a circle given, to find the "*side and equal square,*" multiply the diameter by .8862, or you can divide by 1.1284. Having the circumference given, you can find the side of an inscribed square by dividing the circumference by 4.4428, or multiplying by .2251.



Rule for finding the Joint Level of any Rectangular Box having the top greater or less than the bottom.

A and B are two of the sides as they lie on the bench, with their beveled ends brought together, A B O and C B O being the required flare of the box.

Elevate the E end of B on the axis B O until any given point E on its upper edge rises along the vertical curved line to G, and rests vertically over F, the dotted line G F representing a plumb line. O E will then coincide with O F, and A B will form the angle I H O, which is the bevel for making the joint.

The dotted vertical lines G E and G F are supposed to stand at right angles from this paper. It will be seen that I H O and I F G are both right angles.

The angle I H K, which is half of the angle I H G is the angle for a mitre joint.

THOMAS DONNELS.

LOOSE-JOINT HINGES.—The difficulties so generally experienced in placing doors in the hinges when hung loose, or slip-nuts, sometimes attended with bruises to the hands and fingers operating, particularly by those unpracticed in the art of "slipping them on," suggests the necessity of a reminder. If our hinge manufacturers would make one-half of the hinge with the pin in each pair one-eighth of an inch longer than the other, and point the shorter pin, a great relief would be afforded. If the cost of hinges was slightly increased thereby, the increased facility with which doors could be slipped on by workmen in hanging doors would fully compensate for the extra cost. We shall be pleased to hear from any one who has a better suggestion to offer.

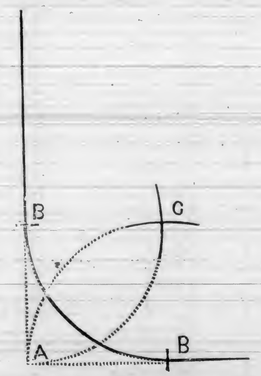
BUS. MAN. OF ARCHITECT.—When and where was paper first used to cover the walls of buildings?

T. F.

ANS.—The use of paper as a covering for walls originated in China. It was introduced in Europe as a substitute for tapestry hangings—whence the term "paper hangings"—by the French.

BUS. MAN. OF ARCHITECT.—I often have occasion to *round off the corners* in various branches of my work, and what I require is a rule by which I can do so, and have the curvature perfect. Will you kindly furnish me the information, as others besides myself would no doubt be benefited. Respectfully, G. T. NOSLER.

ANS.—The accompanying cut will explain a very simple way. It is applicable wherever there is a right angle:



Let B A, A B represent the square corner of a shelf, or any object. Suppose the radius of the curved corner to be 1 inch. From A, as a center, mark off 1 inch each way, as at B B. With B B as centers, and radius A B, describe the circle A C. The point of intersection, C, will be the center of the arc B B.

A carpenter wants to know how to remove the stains in his apron, caused by wet nails. For his information, we will state: Soak the stains in a weak solution of chloride of zinc, and rinse immediately in water.

Society of Architects.

Up to the time of the present writing there has been no movement made toward the completion of the organization other than heretofore reported. We have heard but one opinion expressed in reference to the necessity and feasibility of the formation of a society in the interest of the profession; but a portion of the more prominent and successful architects in this city are less enthusiastic in the matter than they should be, from considerations which should not be permitted to bar their active and earnest co-operation. If a permanent organization had heretofore existed, with a good and sufficient constitution and a complete set of by-laws controlling its operations and the admission of members, then the character of its membership would be entirely under the control of the participating members. But in all preliminary organizations of a general class character, where all enjoy the same individual rights and privileges, there can be no prohibitory lines drawn; and if the "better element" remains inactive, then the lesser must naturally assume the positions and functions which would be more advantageously filled by the former.

This fact has been repeatedly illustrated in the organization of societies of all kinds, that the nucleus membership is generally encumbered with characters which would not pass the ordeal of the ballot-box; but experience, also, demonstrates the easy correction of matters where the really better men exercise the personal influence enjoyed by them, and with determined purpose mold and shape after-movements.

It cannot be expected that fifty or seventy-five men, who have continuously for years, practiced individual views and privileges, can be brought together upon one common understanding and unite in perfect harmony, and with coequal considerations upon all points. Diversities in numerous forms must be anticipated, and the work in hand in the formation of this organization is one which demands of each and every qualified architect the exercise of generous and liberal views, and the practice of that manly determination which the occasion requires. If there is crudeness of material let the better join heart and hand to accomplish a good and creditable result, and bring to bear the strong influence of determined purposes to organize and maintain an institution which shall be worthy of all the sacrifice and effort that the occasion may require.

Our Illustrations.

The Elevation for a Suburban Residence appears without the floor plans, but is accompanied with two sketches of interior finishes. It is a class of house in which large conveniences may be effected. Its extensive verandahs suggest its suitability for localities where the summer months are "hot." Properly located, with suitable surroundings, it will make a neat and not costly country or suburban residence, size, etc., considered.

The plans for a one-story cottage, with five rooms, explain themselves. Its cost may be made to vary from $1,000, according to the economies practiced.

The plans for a stable furnish stalls for thirteen horses, harness-room, office, carriage apartment, etc. One similar to this was built some years ago at Piedmont Springs, Alameda County, at a cost not recollected at present. But, like all other constructions, the matter of cost can be varied from 10 per cent. to 500 per cent., according to the material used, character of workmanship, finishes, etc.

TREATMENT FOR A FELON.—Take of soft lye soap and flax-seed meal or corn-meal a sufficient quantity, stirring the meal in slowly and thoroughly, so as to form a salve or poultice. Envelope the finger in this, applying snugly to bring it in close contact. Renew the poultice every 12 to 24 hours. Don't try every prescription you may hear of. Depend on this. It will, if applied in time, abort the disease; if adopted later, it will bring it to a small "head," (if too far advanced to be "scattered") when it may be picked almost painlessly.—*Therapeutic Gazette.*

Our laws do prohibit the importation of cholera or yellow fever, but those laws were not passed for the purpose of giving protection to our home diseases, which number their victims one hundred to one by the former.

Clippings from Magee's Real Estate Circular for March, 1881.

SAN FRANCISCO, MARCH 1ST, 1881.—No large sales of business property were consummated last month, consequently, though the number of sales made was about the same as in the previous month of January, their aggregate value was nearly $300,000 less. There is really little first-class business property on the market. There are plenty of buyers for such property, but there are next to no sellers. What is offered is second to third class; the prices asked are above the market. There is a fair demand for lots at $2500 to $6000 in the Western Addition, particularly between Van Ness, Gough, Pine and Jackson, Franklin being the center, and there is also a very noticeable increase in the demand for 50-varas in the vicinity of the Park entrance and adjoining the Haight-street cable line, between Devisadero and Baker. There was last month quite an amount of inquiry there. One buyer took eight 50-varas. We predicted, some five years ago, that the next movement in residence property would be out there, and we think that tendency is beginning to be developed. The building of the Haight-street line of cars would at once cause something of a boom out there. By far the lowest prices yet touched by really good Mission property were shown last month, at an auction sale on Valencia, Seventeenth and Nineteenth streets. We contend now, as we repeatedly have, that Mission prices are far lower than they should be.

ONE of the savings banks last week had forty applications for loans at one meeting. This is something that had not occurred before for some years, yet the general demand for money at the savings banks continues very light. Another of the banks has made heavy purchases of U. S. bonds, being tired of waiting for a chance to loan surplus cash out on city real estate. The releases last month exceeded the mortgages in both number and value, as they generally have for a long time past. Eight per cent., the banks paying the mortgage tax, is the lowest rate at which they pretend to loan, but for a few extra good, large loans of $50,000 to $150,000 a lower rate would be made. The Hibernia Bank, for instance, last month lent $105,000 on the Mechanics Institute block for 6⅔ per cent., the bank paying the tax. The banks report that interest was never more promptly paid up by borrowers than at present. This is one at least of the signs of the return of good times.

WRETCHED STREET WORK.—At the very time the street contractors and their assignees were attempting to push through the Legislature their unconstitutional and absurd bill to plunder the city, we were having a very heavy fall of rain. This resulted, as do the rains of every winter, in miles of so-called macadam becoming rivers of mud, and the caving in of dozens of sewers in every direction. An ex-Supervisor and family narrowly escaped being swallowed up, through a break in a sewer over which he was driving late at night. It opened under his horse, letting him down. Elsewhere another horse was engulfed by the giving way of a sewer, and drowned. The newspapers represent a Supervisor, while lately making a tour of observation, as pushing bricks out of the arch of sewers with his umbrella, and kicking others out with his boot. In all of these cases, the city and property owners have been outrageously swindled by the contractors. A well-built sewer, made of properly-burnt hard brick and good cement, will last hundreds of years. The city has numerous bonds with sureties, given by street contractors. Other officials, whose duty it is to prosecute, have given bonds with sureties for the proper performance of their official duties. What is the use of all these bonds? If they are never to be enforced, why not stop the farce of requiring them?

WHAT is the use of trying to scare people to death? The Rutland *Herald* sagely remarks that "sickness and death from eating trichinous pork are too prevalent by far. A sure way to avoid illness from that cause is to eat no pork. The next best course is to eat no pork that is not thoroughly cooked." Now, we would like to wager that the Rutland editor never knew of a case of sickness or death from that cause. They are not prevalent—such cases. To be sure, the disease exists, but it is nonsense to talk about its being "prevalent."—*Boston Herald.*

Sanitary Engineering.

Sanitary engineering seems to be on the eve of an encouraging revival, if we may judge by the universal attention now being accorded to the subject. The effect of the practice of prescribed sanitary law, and the use of approved sanitary appliances so soon yield good fruit, as shown by the health reports of such cities as are best regulated in this direction, that a general interest is awakening on the subject, and more care and thought are bestowed upon it by the average individual. The marked progress in all the details pertaining to this branch of engineering and medical science is everywhere apparent, which makes it more apparent that vastly more is needed. An international medical and sanitary exhibition is to be held in London on the occasion of the meeting of the International Medical Congress, from July 16th to August 13th, and applications for space from America will be received until April 16th. The United States must be well represented.

The Society of Arts, of London, is also pushing in the matter of house sanitation, and have decided to award three silver medals for the three London houses, whether old or new, which are furnished with the best appliances for sanitary purposes. The conditions of the award embrace, among other things, immunity from frost, such as the protection of the kitchen range, the water supply, the action of snow and ice upon roofs, the meters in the house, and other appliances which so often necessitate the presence of the plumber. Besides these the conditions also involve the proper arrangements for preserving internal temperature, by preventing the wasteful escape of heat, and the proper laying of gas-pipes, as well as the regulation of gases from sewage and the construction of drains.

But to be of the greatest benefit, or any benefit at all in fact, good sanitary arrangements must be general and not individual, and out of the more perfect practice must evolve the laws to be enforced to create the common benefit.—*The American Engineer.*

Steam in Extinguishing Fires.

Attention is called by the *Fireman's Journal* to the advantages possessed by steam in extinguishing fires, and several instances are quoted where the accidental or intentional introduction of steam into a burning building had the effect of smothering the flames, and if not entirely extinguishing them, of so subduing them as to bring the fire under easy control by the ordinary means. One of the most striking cases was that of a large mill, which took fire through the accumulation of combustible rubbish in a hollow space between the upper ceiling and the roof, so that half the upper portion of the building was in a bla[illegible] before the accident was discovered. The conflagration spread so rapidly as to be soon beyond control, and the engineer of the fire department had ordered the destruction of the walls still standing, when a carpenter, in defiance of the engineer's prohibition, climbed into the burning building and with an ax broke one of the large cast-iron steam-pipes. The fires were still lighted under the boiler, and the steam poured out, increased by the exertions of others who understood the object which was aimed at, and fed the furnaces with any fuel at hand, and in a few minutes the blaze was seen to diminish, and to leave the portions of the rooms successively filled with vapor, this action continuing until the smoldering contents could be safely approached with the hose, and completely quenched and cooled with water, the result being the preservation of a large part of the structure, which without this aid would have been thrown down into a mass of ruins. The suggestion is made that manufactories could easily be fitted with automatic apparatus for throwing steam from the boilers into any room where needed, and perhaps it will be found practicable to use special engines for throwing in from the outside either watery vapor or what has also been proposed, carbonic acid gas, instead of water whose management presents so many difficulties.

Two French Savans have for a year been keeping nine pigs in a state of habitual drunkenness, in order to test the effect of different kinds of alcohol, and it is said the swine are none the worse for their twelve months' tippling. This was to be expected—of hogs.—*Portland Transcript.*

Who, and What Next?

During the first thirty odd years of the existence of this State no one seems to have conceived the necessity for the publication of an architectural and mechanical journal, until in 1879 the proprietors of the CALIFORNIA ARCHITECT AND BUILDING REVIEW issued the first number of the *Quarterly*. This was followed by the present monthly, under the above title, under the most discouraging circumstances; when gloom and dull times, and unpropitious circumstances surrounded everything in the architectural and building line, and the star of promise was obscured behind the clouds of political chaos; when business confidence was prostrated, and the cry of distress arising from inactivities generally, and the non-employment of the working classes, prevailed all over the State. But the venture was made, and a most satisfactory success achieved.

After the success of the monthly had become established, and it had demonstrated the fact that a journal of its character could be sustained, an enterprising (!) daily newspaper, called the *Evening Bulletin*, which frequently repeats its boastings of "*unequalled enterprise*," became jealous or envious, and to a certain extent departed from its legitimate business of NEWS publishing, and commenced the *copyrighting* business, producing from time to time representations of questionable merit, which have been duly noticed in the columns of this journal. And had the *Bulletin* been influenced by proper motives, it would not have rejected the clear and *conclusively correct* criticisms which followed each publication, and continued its failures.

And now comes another advertising publication containing a number of designs and plans from plates which, in part, originally appeared in this Journal, and may be found in several of its issues since January, 1880. This sort of enterprise or jealousy, as the case may be, perhaps is all right; and those who have learned from us what may be done in the way of plan-publishing are welcome to all the advantages to be secured by the course pursued.

If we have accomplished nothing more, we have stimulated the ambitions and efforts, if not the envy, of at least two other parties or companies; and we therefore ask, *Who next, and in what form?* But whether two or many, neither envy nor enterprise on the part of others will lessen our purposes and determinations to supply all that is required in the form of an architectural and mechanical journal. Being the FIRST in the attempt, we propose also to be the FIRST and BEST in all respects, and give to the Pacific Coast a journal worthy of extensive and liberal patronage, scrupulously avoiding all misrepresentations, particularly in matters of cost and value, which materially concern the interests of both contractors and builders.

Sun Storms.

It is pitiful to witness the condition of the sun. The fire-ball is in intense commotion. His surface is seamed and scarred in every direction, with black spots that indicate the disturbing elements at work in his chaotic mass. Occasionally, for a day or two, the blemishes disappear, and the glorious king of day shows a face like a shield of glowing gold. But the aspect quickly changes; spots come rushing in all directions and assuming all forms. They appear singly and in pairs, and again in groups and rows. Immense groups break up into small ones, and small ones unite to form great chasms, into which half a dozen worlds might be dropped and there would still be room for more. Sometimes the spots are visible to the naked eye, and at that time a good opera glass or a spy glass will make them easily perceptible. Hundreds of observers all over the world watch the sun's face every clear day, and keep a record of the number of spots, their size, and the direction in which they move, for as the sun turns on his axis they turn with him, some of them remaining for months without much change, some taking on new forms, and some disappearing entirely. Very little is known of this mysterious sun or the spots that are visible more than ninety millions of miles away.

Once in about eleven years the sun takes on his present sun-spot phase, and we are approaching the maximum of disturbance. No one knows the cause. Some believe it is planetary attraction, some that it is the fall of great masses of meteoric matter, and some that it is the result of internal commotion and the rush upward of gaseous explosions, in comparison of which our fiercest volcanic eruptions are but the flicker of a flame. Besides the sun-spot agitation, the gaseous outbursts are marked and vivid. The tongues of flame or rosy protuberances are darting forth in all directions and bearing their testimony to the solar commotion. Mr. Trouvelot, of Cambridge, who makes daily observation of the sun's chromosphere, gives a graphic description of a remarkable solar protuberance that he witnessd on the 16th of November. When first seen it was large and complicated, extending upward from the sun about a hundred thousand miles. Three or four hours after it had developed into huge proportions, extending far out into space, and vanishing gradually to regions where it could not be perceived. As nearly as it could be measured, it reached a height of over a quarter of the sun's diameter, or about two hundred and thirty-five thousand miles. Such a protuberance hurled upward from the earth would almost reach the moon! Two hours after, the whole structure had collapsed, and was only about eighteen thousand miles high. Observations like this give an idea of the mighty forces at work in the solar orb, and make observers long for the time when a satisfactory solution may be found for this mysterious periodical solar disturbance, so intimately connected with the meteorological condition of the earth.—*Providence Journal.*

Malleable Castings.

Considerable pretense of mystery is assumed by manufacturers of malleable castings, both in this and the old country, and doubtless there are some trade secrets of value to those in the trade, relative to mixtures of different irons, etc.; but the process is in itself simple, and a little experience should enable any foundryman to attain a creditable success in it. Nearly every founder has his own mixtures and methods, but they are all based upon the processes of Samuel Lucas, of Dronfield, which date back to 1811. The general features of the process, as carried out by the Birmingham (England) iron founders, is given in the *Ironmonger*, as follows:

"For the purpose of the casting, pig of a fine quality is needed, and great care is used in the preparation of the molds, so that there may be no flaw or imperfection in the casting. The latter, after cooling, is, of course, hard and brittle, and it is to remove this brittleness, and give it the character of malleable iron, that the special process is required. The casting is now placed in hermetically sealed pots or boxes, surrounded by powdered ore, and subjected, for several days, to intense heat, which, by cementation, gradually softens it, and renders it malleable to the core, when it may be bent or wound into any shape. The annealing process takes, ordinarily, about ten days. Thus, a pot made up on Tuesday is got up to a white heat about Friday, and this heat is maintained for some twenty-four hours or more, according to the size or thickness of the article annealed. The fire is then allowed to die down, and when the mass is cool, the castings are found to be thoroughly annealed and malleable. Scarcely a trade in Birmingham fails to use malleable castings for some purpose or another.

"The introduction of Bessemer steel has somewhat operated against the trade, but there is still a great field for malleable iron founders, in catering for the requirements of the Birmingham gun, harness, and engineering trades."

The journal quoted thinks it much to be regretted there is not a more free interchange of ideas and experience among English iron founders, as in this only is there hope that the English trade can keep pace with German and French progress in the art.

Midwinter Malaria.

From some cause or combination of causes the present winter has been remarkable for a widely extended and marked increase in diphtheria and scarlet fever, which have invaded homes in which the highest attainable skill has been exercised, and the most approved appliances have been employed to render them as healthy as possible. In some cases the immediate cause of these disorders are undiscoverable, but in the light of sanitary science the class of agents which either initiate or greatly increase the virulence of these complaints is no longer problematical. Decaying organic matters, more particularly animal excretions, give rise to a subtle blood poison, which, though it yet evades chemical analysis, is now conceded on all hands to be a positive deadly fact. When this poison invades a dwelling, no matter whether from exterior or interior sources, in sufficient quantity, the lives of the inmates are jeopardized as positively as though they were compelled to breathe a mephitic gas. The effect may not be so prompt or fatal, but the danger is a fact no longer disputed by any intelligent physician.

It is, therefore, not sufficient to guard against interior sources of diseases; the peril may be in a neighbor's house or outbuildings, in the emanations of a compost heap or a filthy street or hidden cesspool, which if they find an avenue may enter sleeping apartments, find a *nidus* in clothing, carpets, and drapery, and bring in their train the swift destruction of all that is most cherished.

A case in point has occurred in a neighboring village. Five cases of diphtheria appeared in a household where the utmost care had been taken with the plumbing. The obvious inference was that the causes of the complaint were exterior to the dwelling. It was found that the mouth of the air-box through which exterior air entered to supply the heating furnaces was on a level with the top of a cemented pit on the adjoining premises, in which accumulations of kitchen refuse, animal and vegetable, and barn manure, were promiscuously stored and allowed to rot for fertilizing purposes. The foul air from this pit was drawn into the house through this one avenue, and the poisoning of its unfortunate inhabitants, four of whom died in quick succession, was the result. It seems that disease may pervade a house with deadly result where the cause is least suspected; it therefore devolves upon every housekeeper, whether resident of the city, village, or on a farm, to be constantly watchful, not only of his own, but also of his neighbor's premises, that none of the obvious causes of disease be permitted.—*Scientific American.*

Style in Architecture.

We submit the following as being worthy of the consideration of American architectural students:

First. "Style implies some dominating influence reflecting the mind of the age in all its works, and therefore presumes a certain unity of character throughout."

Second. "The primary elements of style are constructive, and the design of work should have regard to construction, and consequently to the proper use of materials, prior to the consideration of its ornamental decoration."

Third. "As construction necessarily implies a purpose, utility must have the precedence of decoration."

Fourth. "As construction necessitates a proper consideration of materials, and as each material has its own mode of manipulation, and is wrought by separate and varied processes, design must be bad which implies indiscriminately the same constructive forms or ornamental treatments to materials differing in their nature and application."

Fifth. "As the greater regulates the lesser, the building should determine the style, and all of what it contains of furniture or decoration should conform to its characteristics, and thus there should be a proper uniformity of style throughout, and a subordination of all the inferior objects to one another and to the whole."—*Builder and Woodworker.*

GENIUS, MONEY, AND LABOR.—Tennyson can take a worthless sheet of paper and by writing a poem on it make it worth $5,000. That's genius. Mr. Vanderbilt can write fewer words on a similar sheet and make it worth $50,000,000. That's capital. And the United States Government can take an ounce and a quarter of gold and stamp upon it an "Eagle-bird" and "Twenty dollars." That's money. The mechanic can take the material worth $50 and make it into a watch worth $100. That's skill. The merchant can take an article worth 25 cents and sell it to you for $100. That's business. A lady can purchase a comfortable bonnet for $10, but prefers to pay $100 for one, because it is more stylish. That's foolishness. The ditch-digger works ten hours a day and shovels out three or four tons of earth for $1. That's labor.

Government Subsidies to Corporations.

One of the most promising signs of the action of healthy influences in our national body politic is the decided rebuff received by the applicants for government subsidies at Washington. Recent events have shown that, while Congressional committees may be moved to favorably report schemes for opening the public treasury to make handsome presents to a combination of wealthy men, under the pretence of receiving a public benefit through the carrying out of some private business arrangement, the collective endorsement of the people's representatives is a harder thing to obtain than it was a few years ago. This means that public sentiment is strongly opposed to making such a flagrantly unjust use of the people's money, and is ready to assert itself, if disregarded, in a way not to be mistaken. When presents of public money or public lands are given to corporations, a plea is always set up that, by carrying out some railroad or steamship project, labor will be given, employment and general business increased. No subsidy has ever been legislated into the hands of a corporation in this country with any provision as to the amount that should be paid out for labor, or the rate of wages that should be paid. The result has been that mechanics and laborers have received but a very small proportion of any government subsidy, while the original recipients of the bounty have never failed to reap a lucrative profit.

If the government is to pay for the employment of labor, let it be upon public works of some kind, and let the benefit accrue to the whole people, rather than to a few wealthy individuals.—*American Machinist.*

Metals and Paints.

The subject of painting metalic bodies is not generally understood by many painters or architects, and as in this climate there is a great necessity for the proper covering of all metalic surfaces, to shield them from the elements, the subject will bear investigation with profit. Metalic paints, and many other compound chemical mixtures, are heralded as the paint for all work, whether wood or metal. It is true of these, and many other kinds, that they are good for *painting*, but not for *preserving* metals from oxidizing. All fine preparations of the carbonates and oxides of lead or copper, are unsuitable for this purpose, for the reason that a *pure* oxide, when applied to other metals, will assist in the action of the elements to oxidize the metals they cover. The vehicle of all good paint is boiled or raw linseed oil, and this, when thickened with pigments, covers a less given space; and the material being an oxide, holding more oil than is imparted to the surface to be painted, soon throws off its share and is ready to absorb the air and convey it to the body of the metal, where natural corrosion will take place, and then the two oxides unite chemically. In other words, all paints, in the absence of a solvent, which time soon releases them of, act upon iron or tin as a filter, feeding the porous spots with moisture, like a porous plaster of *rust;* and as like produces its kind, the decomposed metals work like a happy family, and roll in beds of rust. This fact is observable on flat surfaces, or in gutters where inequalities occur. Here the fine dust or powder collects and keeps the water in them until the oil is decomposed; then the work of oxidation commences. There is another fruitful source from which rust on the upper or *under* side of roofing tin comes, and that is, mixing paints in common, cheap oils of kerosene, containing sulphuric acid. This oil never dries. It may harden the film of paint so as to allow the acid it contains to corrode the tin, and the best paint in the world on the opposite side cannot prevent the acid-eaten holes from coming through; and judge the effect, where both sides happen to receive the same potent mixture. The best paint for tin or iron is composed of pure linseed oil and earthy ochres, red or yellow. The coarser granulated powders are best as a pigment, as they offer less air-holes and give a firmer hold for the oil on the grits, and thus bind them to the metal. The oil in this manner gets close to the metal, and offers resistance to the air in removing the atoms from its cohesion. Beware of all metalic oxides, or *mineral paints*, especially on lofty towers or inaccessible coverings of metal. Roofing tin should, when laid, be kept clean from wind-falls of dust, and painted once in every two or three years, by the day—never by contract. Metals applied in the angles of roofs as flashings, where shingles are laid behind parapet walls, should be well painted on both sides, and the exposed crevices between the laps puttied and painted, and thus cut off leaks in corners "which no feller can find out." I have known of a case where leaks in an outer wall from an A No. 1 tin roof were undiscovered for years. Carpenters were called, imperfect boards were removed from the exterior wall side, and the whole repainted. Still, there was the leak unabated for years; and at last, the painter being called upon to find out the source of the trouble, found upon examination that the clap-boards on the inner side extended down to the tin, or nearly so, thus preventing the paint from reaching the angle of the tin back of the boards. There the dust collected, and dampness had eaten through, and a ruinous leak was discovered by simply sliding a putty knife under the edge of the siding. Wood work never should be allowed to close down on the metal, but instead, a space of one or two inches should always be left, so that paint can be easily applied to all flashings on all sides, and where the dust can be easily swept out. Many troublesome leaks occur from the base of balustrades shutting down so close that dirt is completely imprisoned, and consequently in time decomposition sets in, and the metal coverings are ruined. Bay windows, with balconies, or with other ornaments, if put on with an idea of permanency, should leave ample room for the painter's brushes to reach every angle, nook, or corner, and thus save a thousand leaks.

J. E. W. C.

"The New Refinery."

"It will be completed about December, 1881. We will have a vacuum pan the largest in the world—seventeen feet in diameter. Six and a quarter blocks of land have been purchased on the Potrero, just beyond the new gas-works there, and fronting on the bay shore. Bids for grading the land are now being received. The plans are an improvement on any works of the kind in this country. An average force of two hundred men will be employed, until the work is completed, in building a bulkhead along the shore line similar to the Harbor Commissioners' sea-wall; in putting up the main structure, which will be of brick; in setting the machinery, and in the construction of residences, buildings, hotels, and other conveniences for the employees of the refinery. The entire length of the main refinery building is to be 397 feet; of the building where the sugar is boiled, 105x80; of the filter-house, where the sugars are clarified and other processes completed, 60x147; and of the boiler-house, where the steam machinery is to be placed, 75x187. The refinery and its manufacturing appointments will cover all the ground from Delaware street on the north to Louisiana street. The building is to be ten stories high, 110 feet to the roof, with a deep basement. A wharf 400 feet long, with extensive warehouses for sugar, yards for coal and all the appurtenances, are included. The refinery and its machinery will cost $600,000. The Risdon Iron Works and other founderies are now preparing to do at least $100,000 worth of iron work for what will be the most extensive refinery in America when completed. The whole will cost not less than a million of dollars."

The *Analyst* for December contains a statement that a can of preserved meat over thirty years old has been examined, consisting of veal with considerable fat, and a few peas, which were found to be in a good state of preservation. An analysis showed only 0.68 per cent. of ash, which was entirely free from lead, and contained only minute traces of tin.

Market Reports.

GLASS.—Prices remain the same as our last report. A full stock is on hand.

PAINTS.—Market is well supplied, at last month's quotations.

LUMBER.—There is a steady demand from various parts of the country, and our dealers are all pleased with the prospect ahead. No change from our last. Doors, blinds and sash remain the same, with an increasing demand.

OILS, LINSEED.

Jewett's Raw	70
Jewett's Boiled	75
Pacific Raw	70
Pacific Boiled	75

OIL PAINTS, WHITES.

Atlantic Lead	8@8¼
Jewett's Lead	8@8½
Western Lead	—@8
Pioneer Lead	7½@—
California Lead	6½@7
Domestic Lead	5@5½
Pacific Lead	4½@5
French Zinc, G. S.	12@13
French Zinc, R. S	10@11
American Zinc	5@7

HARDWARE.—The demand for hardware at this season of the year is exceptionally good.

NAILS.

10 to 60 pennies, are quoted at			$3 70
8	"	"	3 95
6	"	"	4 20
5 and 4	"	"	4 45
4 and 5 pennies, brad	heads, at		4 95
6	"	"	5 20
8	"	"	4 95
10 and upward		"	4 70
3 penny fines		"	7 20

Imports since our last: By rail, 206 kgs; per Samuel Watts, 4450 kgs; per H. S. Gregory, 5689 kgs; per Geo Stetson, 2195 kgs 10 hf kgs; per City of Philadelphia, 1193 kgs 10 hf kgs.

Imports since January 1st, 39,766 kgs; 206 hf kgs.

Imports since our last have been close on 14,000 kgs, and the market is consequently dull. Demand is only moderate.

Pine.

Common Rough, up to 40 feet, per M feet			$21 00
"	41 to 50	" "	22 00
"	51 to 60	" "	23 00
"	61 to 70	" "	25 00
"	71 to 80	" "	27 00
Refuse Rough			17 00
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over,		"	28 00
"	4 " and under, and 1¼x4	"	30 00
and 1¼x6 Flooring and Stepping			
Rough Clear for Flooring, $1 00 less than above rates.			
Second Quality Flooring and Stepping, per M feet			22 50
Ship Plank, Rough	per M feet		26 00
"	Planed 1 side	"	30 00
"	" 2 sides	"	32 00
Deck Plank, Rough		"	31 00
"	Dressed	"	35 00
Laths		per M.	3 50
Wool Slats		"	10 00
Shakes		"	9 00
Redwood Posts		per piece	11

Redwood.

Rough Merchantable		per M feet	21 00
" Refuse		"	17 00
Surface No. 1		"	32 50
" 1 x 6		"	30 00
" No. 2		"	25 00
Rustic, No. 1, 1 x 8		"	30 00
" No. 1, 1 x 10		"	32 50
" No. 2		"	27 50
" under 10 feet		"	27 50
T. & G., 1¼ x 4 and 1¼ x 6		"	32 50
" 6 in, 12 ft and over.		"	30 00
" 7 to 11 feet		"	28 00
" under 7 feet		"	25 00
" No 2		"	25 00
T. & G. Beaded, 12 ft & over, per M feet			32 50
" 7 to 11 feet.		"	28 00
" under 7 feet		"	25 00
Half-inch Surface		"	27 50
Pickets, Fancy		"	25 00
" Rough, pointed		"	18 00
" square		"	15 00
Siding, ½ inch		"	22 50
Shingles		per M	2 25
Battens, ¼-inch, lineal feet		"	½o

We are indebted to the *S. F. Journal of Commerce* for the following very full report of receipts and exports of lumber:

Receipts since our last: 3,330,000 feet lumber; 880,000 Shingles; 210,000 laths; 25,122 R. R. ties; 14,000 Posts; ; 490 cords wood; 252 bdls hoops.

Receipts since January 1st:

Lumber, feet	30,750,890
Shingles, No	6,720,510
Laths, No	2,953,000
Posts	72,900
Railroad Ties, No	97,623
Wood, cords	1,991
Staves, bundles	2,428
do No	598
do cords	76
Hoop Poles, bundles	1,052
Hoops, bundles	1,226
Shakes	228,000
Telegraph Poles	26
Spars	6
Cedar, logs, No	1,332
Shooks	50,000
Barrel Staves, pkgs	524
Bolts, cords	144
Wool Slats	10,000
Stave Bolts, cords	30
Piles, No	40,320
Headings, bdls	1,718
Broom Handles, bdls	500
Spars, bdls	25

Exports of lumber since March 1st:

	Feet.	Value.
Mch 1..Percy Edwards, Tahiti	21,976	$628 00
1..Forfarshire, Antevert	10,000	200 00
1..Cetesworth, Queenstown	7,000	140 00
1..Kalakaua, Honolulu	9,986	217 25
1..Angerona, Queenstown	10,000	200 00
2..Alliance, Queenstown	4,600	90 00
2..Valparaiso, Cork	7,300	140 00
2..Dallam Tower, Queenst'n	16,500	330 00
4..Granada, Central Amer	96,708	758 21
4..Cockermuth, Cork	12.000	240 00
4..Sintram, Havre	21,000	420 00
5..Prince Regent, Queenst'n	20,000	400 00
5..River Nith, Queenstown	12,500	250 00
5..Baring Brothers, Liverp'l	33,000	660 00
5..Silas Curtis, Queenstown	16,000	320 00
Rosaria, Hilo	52,056	1316 16
Total	350,276	$6,310 42

Exports of Shingles since our last:

	No.	Value.
Mch 1..Percy Edwards, Tahiti	50,000	105 00
1..W. H. Mayer, Honolulu	200,000	850 00
Total	250,000	$955 00

Receipts are freer now since the fine weather has set in, and the market is well supplied. Receipts to date exceed slightly those of a year ago. Business is slightly improving.

CEMENT, PLASTER, LIME, ETC.

Imports since January 1st: Cement, 16,782 bbls; 5,000 casks; Plaster, 1,550 bbls; 251,037 Firebrick.

Receipts of California Lime since our last: 1540 bbls. Total since January 1st, 11,399 bbls.

There is an immense stock of Firebrick in the market. The prospect ahead for building material of all kinds is unusually good, and dealers hope to do a good business.

Imports during the past week have been excessive—over eight thousand barrels. This indicates the prospect of a great many improvements this year, as it brings total imports to date over 21,000 bbls. Demand is light as yet.

We quote: Plaster — Wedderspoon's Eastern, $3 25 to $3 50; Golden Gate, $2 75 to $3 00 ₱ bbl. Cement—Rosendale, $1 75 to $2 25, according to quality and brand; Portland, $3 50 to $4 25, do do; Lime, $1 30@$1 50 ₱ bbl; Firebrick, $30 to $40 ₱ M.

We quote Building Plaster, for hard finishing and general use, $2 50@2 75; Casting Plaster for ornaments, moulds, etc., $2 75; Superfine Plaster, for sculptors, mouldings, etc., $2 75@$3 00 per barrel.

Building Intelligence.

We present a very full report of building operations for the past month. As will be seen, most of the buildings are inexpensive. We have received information of several buildings going up in the country, but as the parties to the contract had not signed up to the time of writing, we hold them over until next month. Great stress has been laid on building operations in the foot-hills back of Oakland, on account of the completion of the narrow-gauge road, some placing the number of new buildings as high as 200. If that number was divided by 4, it would more nearly express the truth of the matter. The fair suburb of Alameda promises to be very lively in a short time. A great many buildings in this city will be started shortly, but, for the most part, will be inexpensive structures.

SAN FRANCISCO.

Two dwellings on McAllister street, near Gough. Owner, Christopher Turk. Architects, Curlett & Eisen; contractor, David Perry. Cost, $5,000.

Four dwellings on corner of Steiner and Waller. Owner, Wendell Easton. Architects, Curlett & Eisen; contractor, F. Ganteran. Cost, $5,250.

Two-story dwelling on east side of Mission street, between 15th and 16th. Owner, Ernst Lilienthal. Architect, Wm. Scrof; contractors, Norton & Walker. Cost, $2,630.

Raising, repairing, and adding an additional story to house No. 10 Ellis street, near Stockton. Owner, Dr. Oppenheim. Architect, J. Marquis; contractor, brick work, Richardson; carpenter work, Plummer. Cost, $2,500.

One-story and basement frame on Hayes street, between Franklin and Gough. Architects, Townsend & Wyneken. Contractors, Parker & Whalen. Cost, $1,800.

One-story frame, with basement, on O'Farrell street, near Scott. Owner, D. Payne. Contractor, M. A. Lazette. Cost, $800.

Two-story frame dwelling, with basement, on corner Linden avenue and Gough streets. Owner, H. Duncks. Contractor, B. Dryer. Cost, $3,000.

Corner Hayes and Polk: 3 stores on Hayes and double dwelling on Polk street. Owner, —— Lang. Architect, P. R. Schmidt; contractor, Pluns. Cost, ——.

Two-story building, with basement for stores and dwelling, on corner of Polk and Grove. Owner, Wahmouth. Days' work.

Double two-story dwelling on Capp street, between 16th and 17th. Owner, O. Johnson. Architects, Hoffman & Curtiss; contractor, Sanchez. Cost, $2,750.

One-story frame on 17th, between Noe and Castro. Owner, Captain H. S. Templeton. Architect, E. R. Swain. Cost, $1,200.

Repairing buildings on 8th street, between Howard and Folsom. Owner, —— Booveau. Contractor, John Blake. Cost, ——.

Two-story and basement house in rear of 518 Jessie, between 6th and 7th. Owner, —— Beck. Days' work. Cost, $800.

Nine two-story dwellings on Howard street, between 9th and 10th. Owner, Horace Hawes, Jr. Architect, P. R. Schmidt. Contractor, S. Hatfield. Cost, about $24,000.

Two-story dwelling on 12th street, between Howard and Folsom. Owner, John Keefe. Contractor, F. C. Kleebouer. Cost, $1,600.

Large two-story barn, 50x100, with dwellings in front, on 10th street, between Howard and Folsom. Owner, Pugh & Co. Days' work. Cost, ——.

Two-story carriage-house, etc., at Hunter's Point. Owner and builder, E. Steiner. Cost, about $2,200.

Two and a half story cottage, on Washington, between Fillmore and Steiner streets. Owner, Dr. Thayer. Architect, W. F. Smith; contractor, Nelson. Cost, about $4,500.

Additions and alterations to house S. W. corner Union and Octavia.

Two-story frame on Bernard street, near Leavenworth. Owner, —— Harrigan. Days' work. Cost, $800.

Remodelling of houses on corner of Turk street and Van Ness avenue. Owner, E. Cummings. Architect, T. J. Welch; contractors, Smith & Laherty. Cost, $8,000.

Remodelling of house 468 Jessie, below 6th. Owner, T. Gould. Contractor, Hansbro; architect, T. J. Welch. Cost, $1,400.

One-story frame on corner Bush and Broderick. Owner, Mrs. M. Petit. Contractor, Jas. McCann; architect, T. J. Welch. Cost, $1,250.

Three two-story and basement dwellings on Oak street, near Van Ness avenue. Owner, Mrs. M. Wickman. Architects, Huerne & Henriksen; contractor, J. J. McCready. Cost, $6,735.

Two-story dwelling, and barn in rear, on Mason street, near Bay. Owner, H. Pausman. Architect, H. Geilfuss; contractor, Hansbrough. Cost, $2,000.

Two-story building for hotel on S. E. corner Green and Battery. Owner, F. Gercke. Architect, H. Geilfuss; contractor, Sylvester Grant. Cost, $4,800.

Alterations of store on Market street, opposite Sansome. Owner, Gettleson & Landis. Architects, Wolfe & Son. Days' work.

Additions to house 104 Fair Oaks street, near 22nd. Owner, Mrs. Morrison. Contractor, John Bruce. Cost, $500.

One-story and basement frame on Kissling street, between 11th and 12th. Contractor, Sanchez. Cost, $1,300.

Small building near S. W. corner Ellis and Pierce.

Additional story to carpenter shop, 704 Laguna street, between Fulton and Grove.

Rough two-story stable on Linden avenue, above Buchanan street.

Two-story barn on Kissling street, between 11th and 12th. Owner, —— Shroyer. Days' work. Cost, about $1,500.

OAKLAND.

Enlargement and remodelling of dwelling on corner of Brush and 8th. Owner, John W. Coleman. Architects, Wolfe & Son. Days' work. Cost, about $8,000.

Stores and dwellings on corner of Market and 14th streets. Owner, — Duke. Architect, Chas. Mau; contractors, Ham & Main. Cost, $14,000.

One-story brick, with basement, on 11th street, between Broadway and Washington. Owner, M. V. Sparks. Brick contractor, Corey. Cost, about $10,000.

ALAMEDA.

Two-story frame dwelling on Grand street and Encinal avenue. Owner, E. H. Miller. Architects, Babson & Seadler; builders, Gilbert & Brown. Cost, $6,000.

Six-room cottage on north side Clinton avenue, between Grand and Paru streets. Owner, H. B. Wheaton. Builders, Gilbert & Brown. Cost, $2,200.

Taylor avenue, west end, two story cottage. Owner, Wm. Sutherland. Contractor, W. P. Clark. Cost, $1,350.

S. B. Wattles is having a conservatory built on Central avenue, near Park street. Architects, Meeker & Banks. Cost, $1,500.

Frame building on Railroad avenue, between Willow and Chestnut. Builder, W. C. Aickley.

SAN RAFAEL.

Two-story cottage on Mission street. Owner, F. Franks. Architects, Hatherton & Pelton. Days' work. Cost, $3,500.

OLEMA STATION.

Two-story building for a hotel. Contractor, C. Green. Cost, about $7,000.

SANTA CLARA CO.

One-story cottage at Wright's station. Owner, Columbus Waterhouse. Days' work. Cost, $2,000.

Publication Notices.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

Modern Architectural Designs and Details, containing eighty finely lithographed plates; is published by Bricknell & Comstock, of New York, in parts or numbers. Part 5 is before us, and its cuts and illustrations are handsomely executed. The five parts received are all of like excellent character, and being all plates and illustrations without any reading matter, the eye grasps the contents of each page in a moment. Can be had at publishers' price, $1,00 each part, at this office. Every mechanic should supply himself with it, and no architect's library should be without it.

All of Bricknell & Comstock's publications, as advertised in our columns, may be had at publishers' prices through this office.

The California Architect and Building Review.

VOLUME II. NUMBER 4. } SAN FRANCISCO, APRIL, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect
—— AND ——
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

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Notice to Architects.

There will be a meeting of architects of the Pacific Slope at the Mechanics' Institute, (third floor) on Post street, Tuesday afternoon, April 19th, at 2 o'clock P. M., for the purpose of hearing the report of the Committee, and to take such action thereon as may be necessary.

A. LAVER, President *pro tem.*
P. J. O'CONNOR,
J. WRIGHT,
T. J. WELCH,
Committee.

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**

Notice to Architects—Second Meeting.

The Committee on Correspondence, Messrs. O'Connor, Wright, and Welsh, appointed at the preliminary meeting of the architects of this city, for the purpose of organizing a society in the interest of the profession, being prepared to report, Mr. Laver, chairman of the preliminary meeting, in whose hands the matter has rested, has authorized a call for a second meeting of the architects of this coast, to be held on the 19th day of April, 1881, at 2 o'clock P. M., Mechanics' Institute Building, (3rd floor) Post street.

The invitation is extended to, and it is earnestly desired that all qualified architects upon the Pacific Coast will be present, to assist by their wise counsel and advice in founding an organization which shall be perpetuated for all time.

The movement is a good and right one, and it is hoped that every competent and worthy gentleman practicing architecture, and desiring its elevation, advancement, and protection as a science, will be present. It is also hoped that those enjoying the larger experiences, and greater intelligence, and professional abilities will join heartily in the movement, to the end that every protection calculated to insure permanence and perpetuity may be introduced in the foundation work of a society, which shall remain for ages, and bear down to future generations with honorable remembrances the names of those who at present fill positions in life once honored and ennobled by such men as Michael Angelo, Sir Christopher Wren, and others, whose names have shone with luster through the pages of history, in connection with the many imperishable architectural grandeurs of the world, which stand as monuments in honor of the illustrious dead, whose mental and physical powers created and executed masterpieces architectural.

Building Cheaply.

A decidedly erroneous impression of presumed facts, in a majority of cases, enters into the first cogitations in connection with the erection of buildings. The first being that of cost, the rule is to first fix the amount to be expended, and then to work up a plan such as will meet the wants and wishes of the parties designing to build, with but little regard to the cash limits established. The inconsistency of this proposition should be self-evident to every intelligent mind; yet architects have to meet this issue in most cases. It is common for clients to begin with: "I want to build a five, ten or twenty room house, with certain dimensions, but I won't expend more than one, five, ten, or twenty thousand dollars," as the case may be; while the amount named may not exceed 75 or 80 per cent. of actual value. But the architect is expected to work out the impossible result of securing the erection of just the building desired for the sum named, and at the same time produce a substantial, well-built and finished edifice. It only sometimes occurs that an owner first finds and determines the size, character and appointments wished for, and then shapes the matter of cost accordingly; the general presumption being, that by fierce competition, or skillful manipulations, some contractor will be found who will agree to give one hundred dollars of labor and material for every seventy-five, eighty, or perhaps ninety dollars of cost paid by the owner. This is often done, but it cannot be claimed as fair dealing; for while it is legally right for every one to obtain that which he desires at as little cost as possible, it must be apparent to all, that securing things for less than cost of production, works an injury in some direction, and advantages thus obtained, must be at the expense of others, to the amount of all undervaluation and cost. It is astonishing how persistently the greater number of owners will contend for and adhere to an amount once named to cover the expense of building, without any disposition to abate or modify plans and requirements. Usual business rules, which recognize actual values in merchandise and commercial transactions, are rejected in house-building; and the theory accepted that, if one man will not undertake by contract to build and complete a house for a specified sum, another will; the real value being a subservient consideration to that of what may be accomplished through strong competition. And it is too often the case that men can be found who, for the sake of securing a contract, will risk the result of unwise figuring, and having nothing to lose personally, care but little that their creditors sustain loss. And when full payment of all demands is not possible of enforcement under the provisions of a mechanics' lien law, those who obtain buildings for less than actual cost, all parties to the transaction considered, have the satisfaction of knowing that they have secured an improvement in their real estate property—cheaply. The statement is unquestionably correct, that the amount of money paid by owners for the erection of tenements and residence buildings in San Francisco will not aggregate actual cost, by from ten to twenty per cent; the contract price in the greater number of cases being less than sufficient to pay the cost of erection, without considering any profits to the contractor. And contractors who involve themselves in unprofitable engagements, realizing that a loss is inevitable, generally draw from the respective payments as much as possible for personal uses and purposes, leaving those who may hold claims for material or labor, to share in the increase of loss created by such use of a portion of the contract money. All of which is injurious all around. Owners should be careful to select good and honest men to build their houses, and pay them a sum sufficient to cover all costs and expenses; and contractors should exercise and practice sufficient good judgment to keep them clear of all "ruinous" or losing engagements. This sensible men will do, and allow the silly kind to practice their losing operations; and material men who suffer losses by trusting such men to reap what they may gather, whether whirlwinds or golden sheaves.

Labor-Society Organizations.

Well regulated societies among all classes of men are commendable. Common interests invoke common sympathies, and those whose interests are equally affected by the "turns in events" incidental to human conditions, are certainly the best qualified to mingle in protective combinations. The only objection that can be raised to such organizations is, that sometimes injudicious and excessive demands and conclusions are set up and maintained, in violation of universal equities. No man or set of men are entitled to the enjoyment of presumed rights, which subvert or unhinge the legal and moral rights of others. Human rights are co-equal in all classes of society; and only so far as the rights of one class do not impose hardship or injustice upon others, are they sustained by fair and just prerogatives. The violation of this principle of rights has led to many of the bloodiest and most cruel wars that stain the pages of history. Harmonious life can exist only when equities are observed; and so long as associations accept and practice this as a rule, they become defensible before the world, and a power in and of themselves. All combinations created for right and proper purposes are beneficial, and must produce good results, not only to the parties combined, but generally: as the duty rests upon every man not only to know and understand himself and his co-operators in every sphere and calling, but also to set himself rightly before others not treading the same avenues of life. Want of right understanding of "men and things" frequently leads to erroneous conclusions, and sometimes even sacred things are brought into discredit because of failure on the part of those managing them to create defences which cannot be successfully assailed. Therefore we say to every class of men—even the Architects of San Francisco—Organize, as a means both of defence and improvement. For men associated for right purposes, with good intent, and for mutually kind considerations for each other, cannot fail to gather mental and moral strength, and gain additional knowledge.

Discoveries made by Accident.

Valuable discoveries have been made, and valuable inventions suggested, by the veriest accidents. An alchemist, while seeking to discover a mixture of earths that would make the most durable crucibles, one day found that he had made porcelain.

The power of lenses, as applied to the telescope, was discovered by a watchmaker's apprentice. While holding spectacle-glasses between his thumb and finger, he was startled at the suddenly enlarged appearance of a neighboring church spire.

The art of etching upon glass was discovered by a Nuremberg glass-cutter. By accident, a few drops of aquafortis fell upon his spectacles. He noticed that the glass became corroded and softened where the acid had touched it. That was hint enough. He drew figures upon glass with varnish, applied the corroding fluid, then cut away the glass around the drawing. When the varnish was removed, the figures appeared raised upon a dark ground.

Mezzotinto owed its invention to the simple accident of the gun-barrel of a sentry becoming rusted with dew.

The swaying to and fro of a chandelier in a cathedral suggested to Galileo the application of the pendulum.

The art of lithographing was perfected through suggestions made by accident. A poor musician was curious to know whether music could not be etched upon stone as well as upon copper. After he had prepared his slab, his mother asked him to make a memorandum of such clothes as she proposed to send away to be washed. Not having pen, ink, and paper convenient, he wrote the list on the stone with the etching preparation, intending to make a copy of it at leisure. A few days later, when about to clean the stone, he wondered what effect aquafortis would have upon it. He applied the acid, and in a few minutes saw the writing stand out in relief. The next step necessary was simply to ink the stone and take off an impression.

The composition of which printing-rollers are made was discovered by a Salopian printer. Not being able to find the pelt-ball, he inked the type with a piece of soft glue which had fallen out of a glue-pot. It was such an excellent substitute, that after mixing molasses with the glue, to give the mass proper consistency, the old pelt-ball was entirely discarded.

The shop of a Dublin tobacconist, by the name of Lundyfoot, was destroyed by fire. While he was gazing dolefully into the smouldering ruins, he noticed that his poorer neighbors were gathering the snuff from the canisters. He tested the snuff for himself, and discovered that the fire had largely increased its pungency and aroma. It was a hint worth profiting by. He secured another shop, built a lot of ovens, subjected the snuff to a heating process, gave the brand a particular name, and in a few years became rich, through an accident which he at first thought had completely ruined him.

The origin of blue-tinted paper came about by a mere slip of the hand. The wife of William East, an English paper-maker, accidentally let a blue bag fall into one of the vats of pulp. The workmen were astonished when they saw the peculiar color of the paper, while Mr. East was highly incensed at what he considered a grave pecuniary loss. His wife was so much frightened that she would not confess her agency in the matter. After storing the damaged paper for four years, Mr. East sent it to his agent at London, with instructions to sell it for what it would bring. The paper was accepted as a "purposed novelty," and was disposed of at quite an advance over market price. Mr. East was astonished at receiving an order from his agent for another large invoice of the paper. He was without the secret, and found himself in a dilemma. Upon mentioning it to his wife, she told him about the accident. He kept the secret, and the demand for the novel tint far exceeded his ability to supply it.

A Brighton stationer took a fancy for dressing his show-window with piles of writing paper, rising gradually from the largest to the smallest size in use; and to finish his pyramids off nicely, he cut cards to bring them to a point. Taking these cards for diminutive note-paper, lady customers were continually wanting some of "that lovely little paper," and the stationer found it advantageous to cut paper to the desired pattern. As there was no space for addressing the notelets after folded, he, after much thought, invented the envelope, which he cut by the aid of metal plates made for the purpose. The sale increased so rapidly that he was unable to produce the envelopes fast enough; so he commissioned a dozen houses to make them for him, and thus set going an important branch of the manufacturing stationery trade.—*F. D. Stauffer, in Labor News.*

Thirty Years Ago and Now.

During the early years of California the spirit of enterprise and determined purpose was pre-eminent in every community on the Pacific coast. In San Francisco, Sacramento and all other business centers, and in every mining camp and place trodden by the foot of man, untiring energy and perseverance inspired the masses, and universal prosperity everywhere prevailed. Then a recognized common equality existed, and power and personal influences were then very nearly equally distributed; and while each sought to secure as large a share as possible of the golden treasures strewn throughout the length and breadth of California's treasure fields, there was also a general disposition to assist others, and but little of that grasping avarice and personal greed which has since grown to be the curse of the State. Many of those who have since become wealthy were then hard toilers, and worked with pick and shovel, or as porters, "mule drivers," mechanics, whisky sellers, and otherwise mingled in the grand old spirit of ceaseless and manly effort, to develop and reap; and but few were to be found who did not add their mite to the common intent. Successes attended the labors of thousands, and the greater number of those who "made money fast," used it to good purposes, and enabled thousands of others to realize gains and advantages from the generous ventures of the former. But as time rolled on, the evil genius of selfishness came among us, and hands that used to be open, and hearts which were once large and generous, began to corrode and harden under the influence of multiplied and increasing prosperity, and the love of riches allured many who might have continued to be common benefactors without privations to themselves, to fall away into the debased attitude of gold and silver worshippers, seeking to hoard up and increase their gains, with no concern for others or the general interest of the State or city, except such as brought dimes and dollars into their well lined pockets. Wealth is certainly a power in all coms munities, and brings forth the pleasant fruits of general prosperity, when circulated, invested, and made to serve purposes of good. But when gathered into few hands and grasped with vice-like grip, it fails to meet the purposes for which God made gold and silver, and cheats the masses out of those helps and aids which are every man's due. When but few in California assumed financial independence and superiority, the masses were comparatively happy; but as riches settled upon some, they lost sight of former conditions, and withdrew their hands and influence from the great and busy scenes in which they had been prominent actors, and settled away from contacts and co-operations which had made them rich. As these individual segregations increased, rivalries in the enlargement of fortunes followed, and those who possessed most, became the more eager to accumulate; and with this came also the ignoble disposition to "get gain," not caring for means or methods, so that greater wealth was secured. And so it has worked, and today the fact is revealed with indisputable certainty, that while many of our present rich men have become such through honest and honorable efforts and enterprise, many more hold their accumulated gold with the curses of thousands upon their heads. The man who has the protection which gold affords and secures may defy the rebukes and condemnations of his fellow-men; but it requires an unsympathing and frigid soul to endure the frowns and detestation of better men than themselves; and it is safe to say that the good, whole-souled and kind have secured less, as a rule, than have others, the prominent and chief components of whose natures have been, and are, to worship at the shrine of greed, and grow rich with bandaged eyes as to the equities and justice of the methods by which their wealth has been secured. If deserved retributions are to be meted out in the world to come, we would not chance the fate of some we know of for all their hoarded millions twice told.

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

Stench about Kitchen Sinks.

Complaints in this connection are almost universal, particularly in cheap tenement and the moderate-cost residence buildings, in the erection of which economy of cost has been the chief and controlling consideration: and the presumption is well sustained that tens of thousands of wives and servants are made sick by the unwholesome gases inhaled from sinks and their connections. The causes producing this result are two-fold: First, a large number of mechanics have but an imperfect knowledge of "how to make and fit up a sink," so as to render it secure against bad odors; and much of the difficulty complained of exists in this fact. The matter of gaining and nailing a sink together, and securing a bottom thereto, appears so simple a matter, that any man who can use tools at all imagines that he is fully competent; and so he may be, so far as using up the quantity of material necessary for the purpose is concerned. But when the essential niceties of the sink complete are required of him, he is as ignorant as the wild ass's colt—unable to comprehend more than the mere matter of manual labor necessary to "fix" the sink. And sinks fitted up under the direction of architects who say all they know about them, when they specify that this essential adjunct to kitchen conveniences is to be "*framed and fixed*," are no better than those "fixed" by the commonest scrub of a carpenter.

Secondly. The plumber comes in for a share of the responsibility; for however nicely the woodwork may be fitted, if the plumbing-work is defective, evil effects follow. Too great care cannot be exercised by all parties; and comparatively sweet and wholesome sinks can only be obtained by careful and perfect work by both carpenter and plumber. Every joint in the sink, caps, wainscoting, and drain-board, should be made with the greatest care possible, leaving nowhere a single crevice or hole for the reception of vegetable or greasy substances. For wherever leaks exist, or places in which decaying matter can possibly find lodgment, impurity and infection must follow. But some men are so ignorant of the natural laws of things in general, that they consider a joint or fitting all right, so long as it is not sufficiently large to admit a green-pea, or a considerable sized potato-peeling; overlooking the fact that injurious and decomposing matter exists in fluid as well as in solid forms. We urge mechanics, carpenters and plumbers, to think this matter over carefully; and while they would scorn the act of taking human life intentionally, be careful that they do not cause the death of many females by their improper workmanship in connection with sink-work allotted to them. Remember that human life may be as effectually, if not so speedily destroyed, by the agency of poisonous gases, as by the knife, pistol, or a deadly drug.

Stick To Your Business.

There is nothing which should be more impressed upon the minds of young men than the importance of steadily pursuing some one business. The frequent changing from one employment to another is one of the most common errors committed, and to it can be traced more than half the failures of men in business, and much of the discontent and disappointment which render life uncomfortable. It is a common thing for a man to be disappointed with his business, and to desire to change it for some other, which, it seems to him, will prove a more lucrative employment; but in nine cases out of ten it is a mistake. Look around you, and you will find among your acquaintances abundant verification of our assertion. There is an honest farmer who has toiled a few years, got his farm paid for, but does not grow rich very rapidly—as much from lack of contentment mingled with industry as anything, though he is not aware of it. He hears the wonderful stories of California, and how fortunes may be had for the trouble of picking them up; mortgages his farm to raise money; goes away to the land of gold, and after many months of hard toil comes home again to commence at the bottom of the hill, for a more weary and less successful climbing up again. Mark the men in every community who are notorious for their ability and equally notorious for never getting ahead, and you will find them men who never stick to one business long, but are always forsaking their occupation just when it is beginning to be profitable. * * * * * *

Solar Heat, and its Utility in the Arts and Domestic Life.

Solar heat has, of late years, been the subject of much scientific research, and the calorimeter has shown it to be a source of great power. Captain Ericsson has made some very useful applications of this source of heat. The utilization of solar heat for culinary purposes has been the subject of many experiments, by the use of lenses and concave mirrors. These radiate the heat, or rather reflect it upon the object-vessel to be heated, by concentrating the rays to their focal point. When the concave mirror is used, there is less absorption and more power imparted to the heat-rays reflected. The parabolical form of mirror receives the incident rays, and are parallel to its axis, and after reflecting, converge to a focus of the mirror. The hollow side of a sheet of polished metal, inclined to the direct rays of the sun, concentrates its rays at a point near the circumference. Now, if a cylindrical tin vessel, with a black surface, be placed at the foci of the solar rays, it will be readily heated—or anything it may contain. Thus a set of domestic utensils adapted to this service, with the necessary reflectors, would be a novel equipment for an exploring party. The use of mirrors as reflectors was known to the great Archimedes, who, it is said, set fire to the Roman ships in the harbor of Syracuse by their use. There is a modern invention by Prof. Balestrieri, of Naples, which he calls the "*collecteur photo-thermique armillaire*," (the photo-thermic hollow sphere collector) which seems to have the advantage of multiplying the calorific intensity capable of reducing even the most refractory substances. Now, it is possible that inventive genius may so apply these apparatuses for conveying heat-rays, that it will be a source of great economy in the arts and sciences. The old alchemists have used devices somewhat similar for the preparation of elixirs and tinctures, distilling them entirely by the use of reflectors. The actual heat of the sun's rays is an unsettled question of science. It has been demonstrated that the rays of heat were greater than those of molten steel. Of all the sources of heat, that of the sun is the most abundant; and yet, owing to the great distance of the earth from the sun, and its meagre size, it can receive only a microscopic portion of the heat which the sun disseminates in the surrounding space. We are thankful for these genial rays, and would, in the same kind feeling, suggest to inventive genius the want of a small machine of portable character, that will be useful to the shipwrecked mariners on the Pacific Ocean. The ship's boats are inadequate to carry all the necessary provisions, and especially that of water, and soon resource is had to rations, and the allowances become so small that in the end, after great suffering, many die of thirst. Now, what is wanted is some form of still for distilling sea water, so simple in its construction that the reflection of solar heat will evaporate into a condenser sufficient cool fresh water for the use of the castaways on the great desert of waters. This apparatus could be partly or wholly on an adjustable shelf at the stern, with a condenser partly submerged. The Pacific waters would render this instrument more serviceable—or a friendly island—but the relief must be sought wherever, on the trackless ocean, the elements may strand us.

There have been inventions for ship use, one of which was described in Ure, volume 1, page 661. A less perfect machine in its parts would answer than is described by Ure, for this is to meet a special emergency. The simple mode suggested by Dr. Irving consisted in adapting a tin tube to the ship's kettle, and condensing the steam in a hogshead, which serves as a receiver. By this method a supply of twenty-five gallons of fresh water per hour could be obtained on board of a man-of-war. There is another mode of obtaining fresh water from the sea, and that is by freezing, which excludes or precipitates the saline particles. In this connection, I would suggest to ship-owners that they would confer upon seamen a great favor, by providing a rubber water-tank with air-tight supports or floats. This water-tank is to be filled with water when abandoning a wreck, and thrown into the sea and held in tow of the boats, thus providing a good supply of water without any great detriment to the progress of the boat. The application of solar heat to the domestic circle is in the near future; genius, when once directed to this line of thought, will develop forms of reflectors capable of concentrating heat rays so intense that any and all ordinary cooking could be done with despatch. The utensils to be used must be prepared with a rough surface; absorbers of heat, and of such a nature to retain all its power to do the work rapidly. In localities where the climate in the summer months would allow of open windows, the perfected instruments could be set over night, so that the early morning sun could be at work on the coffee urn, and by the time the indolent sleeper wakes, the aroma of fragrant Java, borne upon a zephyr, would be wafted to his awakened senses, inviting him to solace his parched lips with a draught of this delicious nectar.

J. E. W. C.

Well-Closeted Houses.

It matters not what external grandeur, or otherwise general internal conveniences of arrangement may be observed in the construction of residence buildings, if the closet feature is incomplete, either in number or fittings, a very material defect is created, and important conveniences abridged. Closets, pantries, and store-rooms are essential necessities, and every intelligent architect as naturally considers their value, and seeks their proper location and fittings, as the location of doors and windows. A house without closets is but little better than a barn, being incomplete in one of its most to be desired and convenient features. An architect or builder who neglects to produce them in abundance fails to comprehend positive necessities, and should seek some other line of operations as a business pursuit. Having designed and planned hundreds of buildings of all classes, the omission of ample closet accommodations suggests to us stupidity upon the part of those who fail or neglect to incorporate them in sufficient numbers. It is difficult to imagine an arrangement of building for residence purposes in which "places for closets" do not occur, or where closets cannot be inserted without compromising other conveniences, so as to provide at least one closet for each room, and others in the halls.

We do not desire to discourage our bachelor or unmarried brother architects; but it is nevertheless a fact that the wedded architect, who has passed through the experiences attending a matrimonial career of a few years, under the tuition of a "good house-keeper" wife, is made to comprehend the value of closets; and such men generally give due importance to these valuable adjuncts to house conveniences.

Not only are closets important as to numbers, but in their arrangements and appointments. The mere enclosing of a space, and providing it with a door, is only the first step toward making a complete convenience. Judgment, experience, and skill are required in perfecting internal arrangements. We have heard gouty male owners and gruffy architects repudiate "*so many closets*," but have yet to meet the first lady house-keeper who did not desire "all the closet room possible"; and have yet to see the house in which there were too many closets.

But sometimes the fitting up of closets causes both architects and owners a great deal of trouble. If the mechanic happens to be one of that class who "lives in boarding houses," in which closets are a scarcity, and such as there may be of the most crude and imperfect character, he "cannot see why there is so much fuss about closets," or why so much time and labor should be expended upon them. To him, a shelf or two appears sufficient for all reasonable purposes, and more than these he considers unnecessary. Consequently, such men sometimes reluctantly fulfil owners' wishes, and as much as possible oppose the requirements of plans and specifications, and the directions of the architect in cases where nice work, with considerable appointments are required. But the man of family, who seeks to make his home comfortable, must of necessity understand the value of these little conveniences, and is prepared to appreciate the wishes of those who "want nice closets." There is quite a difference among mechanics in this particular: some giving due and proper consideration to this department of house convenience, while others fail to appreciate their necessity beyond a few shelves and a pin-rail; and architects are often required to enforce the sternest exercise of their authority in securing good closet work.

But sometimes even the architect engaged is deficient in this department of house construction, and many a good home, otherwise, is made less convenient than it might have been, had the architect schooled himself in the art of providing abundant closet accomodations. We do not say this reflectingly or reproachfully: but some men of fixed notions "cannot see the necessity" for certain things, and therefore they imperfectly devote themselves to the development of such features. And, as a word of advice to all brother architects, we suggest to one and all, study well the matter of closet construction and fittings, as a good reputation among wives and good house-keepers depends largely upon the perfectness of these "great conveniences."

To Dispose of Kitchen Garbage.

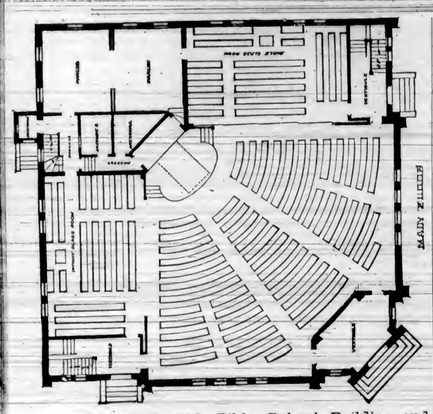
In a communication to *The Sanitarian*, Dr. E. F. Peck, of Brooklyn, recommends to burn up the refuse matter of the kitchen on the premises. Several years' experience with this way of disposing of garbage has shown us that the plan is perfectly feasible and satisfactory. The doctor says:

"Men of intelligence, householders, and housekeepers ask us how it can be done without the fumes or gases getting into the house. I answer, very easily. First, as to the manner or *modus operandi*: The burning of coal fires in ranges and in cooking stoves constantly gives off gases more volatile, more penetrating, and more poisonous and deleterious, than the gases from the burning of the refuse kitchen matter, such as potato peelings, turnip tops, and other trimmings, when thrown into the fire, when these substances are fresh; and so also of the scraps of meat, bones, etc., after dinner, if thrown into the fire. Now, if the gases that are generated constantly by the burning of coal fires in ranges and stoves are all carried off harmless and unperceived, as they are by the chimney, the less penetrating and less powerful gases from the kitchen refuse will be carried off harmless and unperceived.

"This is about all the philosophy there is about it, and it is a perfectly simple process; any man or family can try it and *do it*. As to this material being of any value or any use to anybody, as some say it is, and ought to be saved, it is quite a mistake; it is of no sort of value or use to anybody who has not a pig-pen near his house, to throw it into whilst it is fresh; to attempt to save it in cities or large villages is penny-wise and pound-foolish. It costs more than it comes to, for it cannot be kept any time without undergoing decomposition and becoming putrid and filthy; and it is this *vile leaven* that poisons the streets and fills the air with pestilence, supplying the pabulum of diphtheria and fevers the most malignant and deadly, not only in the streets, but in the houses; and whole hetacombs of children are slain by the unseen foe that enters our dwellings in the filthy garbage box. The boxes or receptacles of this vile stuff cannot be kept clean; they are a nuisance in or about the house or on the premises. In a few cases, in cities where large hotels have a farm near by, the material can be carted off before it becomes putrid, and used in the hog-pens. Very few know the importance of keeping our dwellings free from all decaying matter. Cleanliness is next to godliness; pure air and pure water, the first essentials for life, are the gifts of our Creator, and when they come from his hand they are pure and undefiled.—*Druggists' Circular and Chemical Gazette.*

New Motive Power.

The *Echo* states it is not impossible that before our coal-fields are exhausted we shall have discovered some means of doing many things without that at present invaluable fuel—at least, in regions where the sun shines. We have previously given an account of M. Mouchot's solar engine, but that extraordinary method of utilizing the heat of the sun has been eclipsed by an improvement devised by M. Pifre. It is stated that the latter has gone so far as to utilize eighty per cent. of the available heat of the sun's rays at Paris, and has actually constructed an apparatus with which he pumped water to a height of ten feet at the rate of over twenty gallons a minute. As in Mouchot's solar engine, a reflector receives the light and concentrates it upon a boiler, in this case containing nearly ninety gallons of water, which, under a clear Paris sky, begins to boil in about forty minutes, and in a few minutes longer has sufficient pressure to drive the engine working the pump. In the not distant future, then, tropical countries will be the places where motive power can be had for next to nothing.—*Journal of Applied Science.*



'An Improved Bible School Building and Church Edifice Combined.'

The accompanying plan of a Church and Bible School Building has been forwarded to us by its author, Mr. W. H. Brearley, Detroit, Mich. It presents some novel features of arrangement, and departs from the usual method by placing the pulpit in one of the angles of the main square of the auditorium, instead of the center of one end.

"This ground plan, drawn to a scale of 80 feet square, may all be thrown into one room, with the exception of the sliding-door at each side. The doors at one side are shown closed, the other open. The seating capacity of this floor, with the galleries included, is eleven hundred (1,100) adults. The larger room is about 60 feet square. The side rooms are 20x35 feet each. The parlors are each 20 feet square, and the dressing-rooms 6x8 feet."

The various appropriations of the several apartments are fully described in the descriptive pamphlet received, but too lengthy for insertion in full in this Journal. Some of its claims are specially forcible, particularly that which places the pulpit or speaker's desk in a position relieved from the "trying to the eye" annoyance, common in church edifices, of one or more windows so located back of the pulpit as frequently to make attendance upon church services more of a punishment than a devotional pleasure.

The nearest approach in this city to this "new idea" is that of the "Tabernacle," on Tyler street, where the pulpit occupies a position at one side of the octagon, with the seats rising in semi-circular amphitheater form, to the main passage-way, with a rise of some 12 to 20 feet. But there is no sliding-door or "Bible class" arrangement in this case, the building being exclusively for "Divine worship," with the Sunday school arrangements in the basement.

The Baptist Church at San Jose has its pulpit at the side, with graduated floor and seats, approached from the two street entrances.

We receive this "improved plan" with favor, and think that its general and special features may be rendered very acceptable. Some of the churches in San Francisco are said to be copies of others built east of the Rocky Mountains. We hope there will be no attempt to copy the plan under notice, without permission from its author, for two reasons: First.—It is *copyrighted*, and is the rightful *legal* property of its author. Second.—Because he who originates is, in every rightful sense, entitled to all the benefits accruable from his inventions: and our theory upon this point is that those who appropriate to their own uses, purposes, and advantages, that which to others belongs, whether in the form of coin and things of commercial value, or mind and brain inventions and productions, are in either case guilty of moral, if not legal dishonesty. We are sensitive upon this point, because very many of our own original devices have been appropriated by others, without so much as "By your leave, sir"; and, in our journalistic experiences, many of our articles have been reproduced in other journals without any acknowledgment of authorship, and passed off as original with the journals doing us injustice.

Any one desiring to examine the pamphlet containing elevations, sections, and full descriptions, can do so by calling at this office.

Unfair Journalism.

The grades of all classes of crimes and wrong-doings are defined by the laws of the land. Murder, robbery, burglary, etc., each has its classifications, involving different durations and characters of punishments and penalties, from fines, imprisonments, fine and imprisonment, and the more ceremonious sending-off of guilty parties—by way of the gallows—to the unknown land, where human laws and penalties cease to operate; murder in the first degree alone involving the transit of erring spirits from time to eternity. But there are some wrong things committed in this world which unfortunately cannot be reached by legal enactments, because not included in the category of human *criminal* irregularities. Still, in a moral sense, they are equally condemnable, and deserve punishment as much as some of the recognized more flagrant transactions. In journalism, plagiarism is considered the highest departure from rectitude, and is but little less than a crime deserving punishment under due process of law. And we regret that some editors permit themselves to violate the acknowledged just and proper rule which professedly entitles each to the credit of his own productions, and imposes upon those appropriating the writings of others to their own uses, without due acknowledgment, the stigma of dishonor. And the fact that laxity in the practice and enforcement of legal and moral laws and rules is common, by no means lessens the guilt of such violations, in the estimation of strictly correct-minded men.

The many appropriations without credit, of *original articles* from our pen, appearing in this Journal prior to the issue of its No. 9, induced and justified an article in its September issue, under the head of "COOL," in which we exposed and condemned in plain terms the unfairness of certain Eastern journals, particularly *Carpentry and Building*. We hoped that no occasion would again occur for similar reference; but in its issue of March, 1881, we find in the same journal an entire article, originally appearing in this Journal in its September issue, entitled "LADIES THE BEST PLANNERS," without any other credit than *"One of our exchanges says."* Would it not have been just as easy, and *far more just and fair*, to have stated the CALIFORNIA ARCHITECT AND BUILDING REVIEW says? We have copied from the same journal with the same credit, but in connection therewith gave as a reason for so doing that we were following the example of the journal named, which had *previously* done the same thing toward us. We have no disposition to withhold credit from any source, and believe that we have observed the rule of credits as faithfully as any journal published. Does it not appear, from the reproduction of an article published in this Journal *six months ago*, that our New York friends were pressed for matter to fill their columns? If, as in other cases, the article named has gone the rounds of other journals without credit to us, and reached *Carpentry and Building* through other channels, that fact simply illustrates the necessity and propriety of the journal named mentioning explicitly the source from whence the article was copied, which would enable us to place the responsibility where it belongs, and relieve the New York journal from imputations which place it in no favorable light in journalism. But as the matter stands, the reasonable presumption is that the copying was from our columns, as regular monthly exchanges pass.

Another suggestion enforces itself, and that is: As the journal named has appropriated two or more of our original articles, *without the shadow of acknowledgment*, not even so much as "An exchange says," how much of its matter, appearing as original, is produced from other journals without credit? We cannot answer.

We should much prefer to compliment our New York contemporary for fairness, rather than to enter this complaint; but, situated as we are, with but a fractional part of the advantages and facilities enjoyed by eastern journals, it is but natural and reasonable that the uncredited use of our original matter by others should provoke rebuke.

A Necessity.

The necessity for a journal of the character of the CALIFORNIA ARCHITECT AND BUILDERS' REVIEW upon the Pacific Coast is universally admitted, and that necessity should secure it a circulation excelled by no other class journal. We want TEN THOUSAND ADDITIONAL SUBSCRIBERS—not from avaricious desires, but from the other two legitimate and reasonable motives: First, to compensate for the arduous labors and large outlays involved; and, secondly, to enable us to consummate the improvements mapped out, and make the REVIEW a journal of superior excellence.

EVERY OWNER OF REAL ESTATE

should subscribe, because matter of great value and instruction, in regard to house construction, sanitary, health, scientific, and other important subjects, is to be found in its columns.

EVERY CONTRACTOR AND MECHANIC

should subscribe, because it contains a large amount of valuable matter upon mechanical principles and issues, and a fund of information which cannot be dispensed with by the mechanical operating classes, without loss to themselves.

EVERY ARCHITECT,

—well, we are pleased to say that nearly every one upon the Pacific Coast has subscribed; and the few who have not, will benefit themselves by doing so, and help us to establish a journal in the success of which every architect should feel a permanent interest.

Industrial Secrets.

A century ago, what a man discovered in the arts, he concealed. Workmen were put upon an oath never to reveal the process used by their employers. Doors were kept closed, artisans going out were searched, visitors were rigorously excluded from admission, and false operations blinded the workmen themselves. The mysteries of every craft were hedged in by thick-set fences of empyrical pretensions and judicial affirmation. The royal manufactories of porcelain, for example, were carried on in Europe with a spirit of jealous exclusiveness. His Majesty of Saxony was especially circumspect. Not content with the oath of secresy imposed upon his work-people, he would not abate his kingly suspicion in favor of a brother monarch. Neither king or king's delegate might enter the tabooed walls of Meissen. What is erroneously called the Dresden porcelain—that exquisite pottery of which the world has never seen its like—was produced for 200 years by a process so secret that neither the bribery of princes nor the garrulity of the operatives revealed it.

Other discoveries have been less successfully guarded, fortunately for the world. The manufacture of tinware in England originated in a stolen secret. Few readers need be informed that tinware is simply thin iron plated with tin by being dipped into the molten metal. In theory, it is an easy matter to clean the surface of iron, dip it into a bath of boiling tin, remove it enveloped with a silvery metal to a place of cooling. In practice, however, the process is one of the most difficult in the arts. It was discovered in Holland, and guarded from publicity with the utmost vigilance for more than half a century. England tried in vain to discover the secret, until James Sherman, a Cornish miner, insinuated himself master of the secret, and brought it home. The secret of manufacturing cast steel was also stealthily obtained, and is now within the reach of all artisans.—*Min. and Sci. Press.*

THE joinery trade is reported to be dull, and this is attributed in a measure to the fact that a partial stoppage to building operations has been caused by the recent inclement weather. Complaints are rife, too, in regard to the excessive competition and the cutting in prices which prevail; a little moderation seems to be requisite in the importation of doors, sashes, moulding, etc., so that a healthier tone may prevail. We hear that the importers of American doors have put up their prices five per cent., a step which would appear to be quite necessary.—*Timber Trades Journal.*

Send for a copy of the "Steel Square and its Uses," handsomely bound and illustrated. Price 75 cts.

Security in House Drainage.

Mr. Daniels, a prominent and practical plumber in San Francisco, has handed us for publication the following communication. As the result of practical tests, we can indorse the suggestions contained, and recommend the system proposed whenever the character of buildings and the several "runs" of waste-pipes will permit concentration of discharges into one common receiver. Whatever of sewer gases enters buildings, must of necessity pass in through the various *continous* pipes connecting with the sewers at one end and the several "modern improvements" and fixtures at the other, a silent yet perpetual occurrence in all buildings in which the plumbing work has been done in the "usual way" by some "practical" plumber, who is so only in his own estimation. A majority of self-styled "practical plumbers" understand sanitary science about as well, and no better, than the ante-diluvian races understood the art of printing, or electrical sciences. The recommendation that a flue be erected from, and enclosing the hopper or receiver, is not a necessity, but it acts as a conductor to carry the fumes of the hopper and the escape gas above the roof. Ordinary slop-hoppers are always connected with sewers, and are used without flues or chimneys above them, and the emptying of house-wastes into these common receivers of "slops," etc., would not increase their offensiveness, nor render chimneys above them any more necessary than in ordinary cases. Still, the chimney feature renders the arrangement more perfect.—ED.

The communication reads:

NON-CONTINUOUS WASTE-PIPE SYSTEM FOR THE SANITARY DRAINAGE OF DWELLINGS AND PUBLIC BUILDINGS, AND THE ABSOLUTE EXCLUSION OF SEWER-GAS.

The special feature of the system consists in conveying and aggregating all the wastes from the house, (except urinals and water-closets) into a single receptacle common to all. This receptacle is termed a slop-hopper, and is preferably placed at the ground level, on the side or rear of the building. Immediately over this slop-hopper is an air-shaft of wood, metal-lined, in dimensions usually 8x24 inches. This air-shaft continues and extends above the roof six or eight feet, and terminates in the usual chimney form.

Within this air-shaft all the pipes from the upper stories are contained, each story having its separate waste-pipe, extending from the slop-hopper receptacle to the apex of the chimney vent; and the waste from each floor level, uniting to this perpendicular pipe at an angle of forty-five degrees within the air-shaft, also contains the soil-pipe, which has no connection with the slop-hopper, but continues on downward a few feet, and makes a junction with the stone-pipe at an angle of forty-five degrees, and at a point on the street side of the slop-hopper connection.

It will thus be seen that any sewer-gas that enters the house drain at the street sewer does not remain at rest until it finds its way out at the top of the vent-chimney; and there are no lodgment places, closed ends, or trapped pipes without circulation.

All the fixtures within the house have the usual S trap, and are vented with an air-pipe of caliber equal with the trap. This air-pipe continues on an ascending incline from the top bend of the trap to a point above the uppermost inlet on the perpendicular pipe.

In dimensions the hopper receptacle is about 15 inches in diameter, and the same in depth, with a 4-inch S trap, (water seal) at the bottom, and immediately beneath it is the junction with the stone-pipe sewer.

A bib-cock from the house supply is placed over the center of the hopper, and is intended to give an occasional flush to the sides of the hopper, should it be found desirable.

The difference between this system and the ordinary waste-pipe system may be summed up thus: In the ordinary waste-pipe there is usually an S trap, sometimes vented with a small air-pipe, but not always; and its susceptibility to danger consists in its liability to be syphoned empty by the outflow of its own pipe, or by an adjacent waste-pipe following the same outlet.

This state of affairs permits an inflow of sewer-gas into the apartment through the empty trap, caused by what is termed a momentary vacuum in the waste-pipe.

Another equally dangerous liability that the ordinary waste incurs consists in what is termed momentary plenun, and is caused by the downwash of water from a story above, forcing the gas to bubble through the water contained in the trap of the fixture below. There is also the old evil of absorption and emission, particularly when the gas becomes concentrated for want of vent.

In the system proposed all these evils are removed.

First.—Under ordinary circumstances, with proper size of street sewer, proper inclination, etc., there can be but very little sewer-gas within the house-drain, (underground stone-pipe from street to the foot of air-shaft) and if any, it is so diluted as to be almost harmless. This is caused by the in-rush of fresh air to top of the soil-pipe each time the water-closets are opened. By this open top soil-pipe we not only give free vent to gas, if any there be, but we forcibly charge the entire house-drain with fresh air to dilute, oxidize, and render harmless any that might get there since the last down-draft in the soil-pipe.

Second.—Having one soil and drain pipe arranged to avoid the accumulation of any but a minimum amount of sewer-gas, we proceed with one ramification of waste-pipe through the building, and discontinue the stone-pipe, and make use of the open air hopper receptacle: we thereby break the contact between house and sewer.

The vapor from the main waste water is carried off up the air-shaft; a free inlet vent to the bottom of the shaft is provided in the shape of an ornament lattice-work door, which also gives access to the bib-cock, hopper-trap, etc.; also an excellent means of ready inspection.

We continue upwards and find there is no sewer-gas there; but, in order to be doubly sure, every fixture has its own independent trap, with air-pipe arranged to prevent the possibility of plenun or vacuum, as previously described.

It is susceptible of demonstration that the air within the pipes above the hopper receptacle is as clean and pure as the air within or without the building, except the vapor incidental to the passage of warm water.

The system is termed non-continuous, from the fact that it makes an open-air junction with the hopper receptacle, and any of the mephitic gas in the sewer that might pass the trapped hopper would be more apt to dispel by an open atmosphere, than to continue onward in the waste-pipes.

Location of Factories.

Among the first questions that comes up when the starting of a prospective manufacturing establishment is considered, are: Where shall it be located? Where do we expect to sell our product? Shall we locate among our prospective customers? Or, shall we locate among our competitors?

If a man intends to become a selling agent in any given territory for a distant manufacturer, whether he sells by sample or carries a stock, it is a good thing to be located on the ground. But the man who sets out to make shop tools or machines for the Western or Southern trade for example, should weigh the chances well before committing himself to a Western or Southern location for his manufactory. The reason is obvious. Western and Southern men are just as human as the majority of Eastern men, and in the machinery line, reputation always counts for a good deal. The Western or Southern manufacturer who starts in brand new, with a new machine or line of machinery designed for use in shops, must make up in mechanical merit and selling power for his lack of reputation. But not every manufacturer possesses the highest type of persuasive selling power, (of course his machinery always possesses the superlative degree of merit). In any case, he will find that out of a given number of possible buyers, south or west, a large proportion will prefer not to take the chances with anything new, and will fall back on existing prejudice in favor of the work of well-known Eastern makers, because they are well-known; while another large proportion may, perhaps, prefer them because they are Eastern. The saying is just as true now, as it was two thousand years ago, that "a prophet, (*i. e.* a new-comer who essays the gift of prophecy) is not without honor, save in his own country," more especially if that country be a new country not greatly noted as a prophetic headquarters. Of course, there are exceptions to all rules. There are machinery establishments which start in the newer portions of the country, and become noted as shining successes in their line; but it is a matter of doubt whether these shops have not found the bulk of their trade to lie among people whose purchases are largely guided by knowledge of merit, arising from familiar intercourse with other manufacturers. Were these same shops located in some acknowledged machinery headquarters, who shall say how many trials and obstacles they might have been spared?

But the border land between the region in which tools are used, and that in which tools are made—how will that answer as a location for a new shop? Without the advantage that with some buyers is afforded by a desire to help forward home manufactures, (when this can be done without personal or pecuniary risk, for this sort of a proviso is usually made in such cases) such a location will more commonly be found to have the disadvantages of both of those we have named, without the full advantages of either.—*American Machinist.*

The Lower Classes.

Who are they? The toiling millions, the laboring man and woman, the farmer, the mechanic, the artisan, the inventor, the producer? Far from it. These are nature's nobility. No matter if they are high or low in station, rich or poor in pelf, conspicuous or humble in position, they are surely upper circles in the order of Nature, whatever the factitious distinctions of society, fashionable or unfashionable, decree. It is not low, it is the highest duty, privilege and pleasure for the great man and high-souled woman to earn what they possess, to work their own way through life, to be the architects of their own fortunes. Some may rank the classes we have alluded to as only relatively low, and, in fact, the middling classes. We insist they are absolutely the very highest. If there be a class of human beings on earth who may be properly denominated low, it is that class who spend without earning, who consume without producing, who dissipate on the earnings of their fathers or relatives, without being anything in and of themselves.—*The Mechanic.*

American Goods.

The *American Register* boasts, and not without reason, adds *Land and Water*, of the slow but sure manner in which American goods are forcing their way into and successfully competing in all foreign markets with European manufactures. "Our cotton goods, both heavy and fine, and our spool thread, are rapidly taking the place of English. Our printing and wrapping paper is finding a ready sale in the East and West Indies, while even bank note and bond paper is in demand in Italy, Austria and Spain. American cutlery is sold in Birmingham; our locks are supplanting those of English make in English houses. American jewelry is sold in Paris, and if we are not sending coals to Newcastle, London is talking of supplying her grates and furnaces with anthracite from Pennsylvania." English manufacturers must stir up and put their shoulders to the wheel, or they will be nowhere in the race for wealth.—*Scientific American.*

THE opportunities for manufacturing enterprises in California are numerous, and the time will come when these great sources of permanent wealth will abound upon this coast. In the cutlery line, a degree of perfection has been attained, unexcelled by that of the older States of the Union, or the countries of Europe. And in many other branches of industry results have been achieved, comparatively good with those of the oldest manufacturing centres of the world.

Why, then, is it not safe to say, that in time, when the present grabbers and hoarders of wealth shall have gone down to molder in the dust, as do the humblest and poorest of mankind, and their millions of gold pass to other hands, and live, enterprising men take their places in the daily affairs of life, then with the innumerable resources of this coast, manufacturing interests will be established and carried on with success. But it will, perhaps, require a new set of men, less selfish and more enterprising than those who now control the best interests of this western paradise of God.

The Industries of the Pacific.

PIONEER WHITE LEAD WORKS.

We hope from this on to see California take a better position as a manufacturing center than she has hitherto done. Rates of interest have materially lessened, the country is more thickly populated, means of transportation have increased and improved, and the State has "waked up" generally. It takes time to develope an industry of any magnitude, and it also takes a good deal of money and energy to start it. But we have the energy and the money, and now is the time. There are a good many small towns throughout the State where no particular impulse has been given to any branch of business that can be widely developed, and in any one of those places, if a start were made and a manufactory established, it would not be long before that establishment would make a name for itself if managed properly.

It has been noticed that when a certain kind of manufacturing industry has started up in a small town or new settlement, it finally becomes the prominent industry of the town. Hundreds of Eastern and European towns indicate this. Some are famous for iron work, some for cars, some for clocks, knives and forks, toys, brass goods, firearms, etc. We haven't any of these places in this State, yet they are the localities which make other communities prosperous.

Most of the manufacturing industries of the State of any magnitude are concentrated in San Francisco. The small towns have been left out in the cold, and have to depend on the agricultural or mining communities near them for support; and, unfortunately, the result has been that very few of the interior towns are in as prosperous a condition as they should be.

Manufacturing establishments of any character must first acquire a local reputation, and this will in time spread as their business increases. San Francisco is now mainly noted, from a manufacturing point of view, for its mining machinery and its woolen goods. The woolen mills have sent their products all over the coast. The foundries, from small beginnings, have multiplied in number and in usefulness, and have for some years manufactured mining machinery, not only for the Pacific Coast States and Territories, but for Mexico, Japan, and South America. California has set the pattern for mining machinery of all kinds, making it better and cheaper than elsewhere.

Of course, there are many other branches of manufacture in this great city which are prosperous and flourishing, and which are gradually becoming better known, and principally among these is the one whose title occupies the head of this page. This industry occupies a first place on account of its being a true home production. And for its inception, and the grand results that have followed, we are indebted to the enterprise of Messrs. Whittier, Fuller & Co.

THE PIONEER WHITE LEAD is of a superior quality, and is not excelled by any make either in the Old or New World. It is made from pig lead mined on the Pacific Coast, (California and Nevada,) is ground in the linseed oil crushed in San Francisco, corroded in pots and with chemicals of local manufacture, and in the most critical sense is a *Pacific Coast production*. In *color* it is *pure white*; it is *finer ground* than that made elsewhere; is *easily washed*, and has *great covering properties*.

Heretofore the pig lead produced on this Coast has all been shipped East or to Europe, and our *white lead* there manufactured and returned to us, at a cost of *two freights*, which is now saved to us by the institution of the *Pioneer Lead Works*.

The process they employ is no patent, or new fangled process, but is the one invented and introduced by the Dutch, many years ago. An explanation of this process may interest our readers.

The pig lead is first melted in a large iron kettle, from which it flows in a molten stream on to an endless chain of peculiar pattern, on which are formed circular plates of lead of about three-eighths of an inch thick; these are placed in earthen pots, nearly similar to our common flower pots, in the bottom of which is placed a certain quantity of acetic acid; these pots, so charged, are then placed in bins or stacks, 20 feet wide, 24 feet long, and 20 feet high, each capable of holding forty tons of pig lead, prepared for corrosion. Under and above, and surrounding these pots, is a heavy body of tan bark, from which a heat is generated, and the chemical action commences.

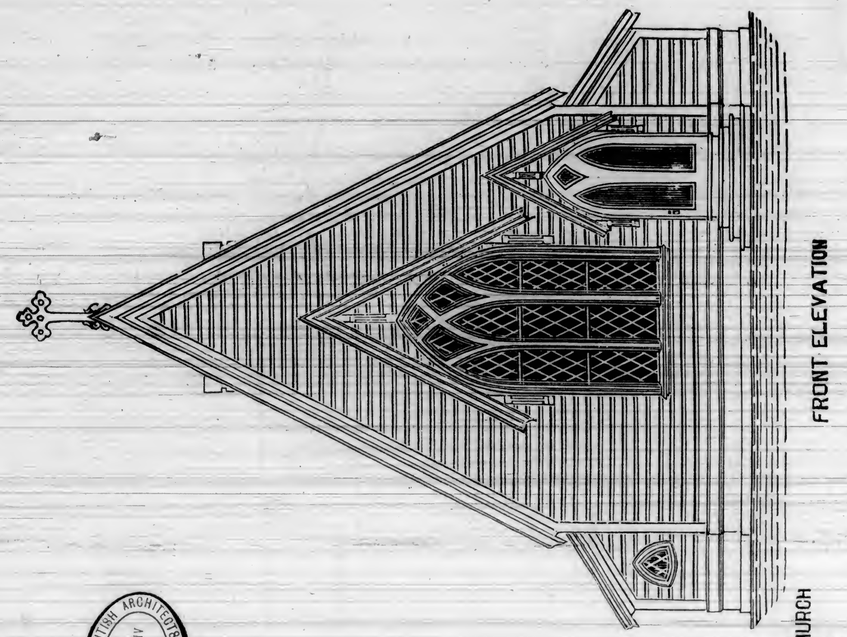
It takes from three to four months to complete this action, or to corrode the lead, when the pots are removed from the stacks, and the contents are seen transformed from the dull blue lead, to a crystalline, pure white substance, which is easily crushed by pressure of the fingers. From the pots it is conveyed to the main buildings, where it is thrown into the hoppers, and thence by automatic action is taken from stage to stage of the different separation and washing processes, and from floor to floor, until it is poured in a stream on to the drying pans, which occupy the entire upper story, (fifth floor) where the temperature is maintained at 145 deg. Fahrenheit; thence it is conveyed to the crushers and oil mills, and packed for market.

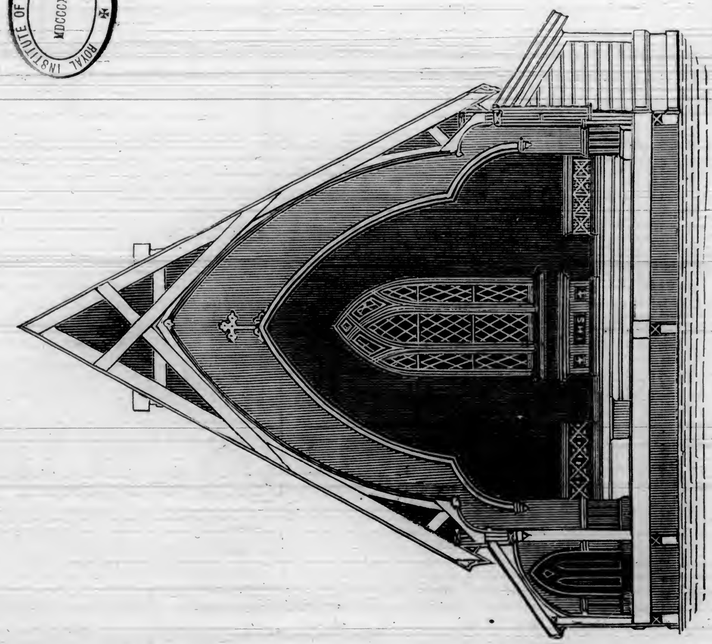
The production at present is 150 tons monthly, and the capacity of the works is double that quantity, without further additions. Without question it is, in all its appointments, equal to any establishment of the kind in the United States. The factory buildings cover a space of 46x275 feet, and the corroding sheds 92x275.

In addition to the White Lead Factory, they grind all kinds of

PAINTERS' COLORS,

And their Productions are Unequalled for PURITY AND FINENESS





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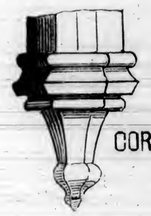
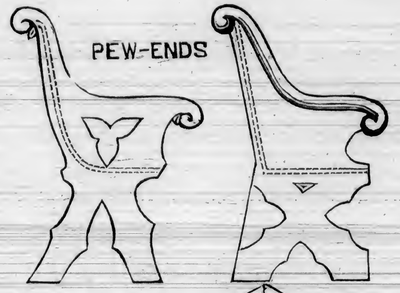


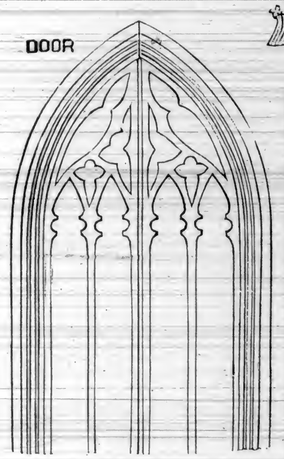
CORBEL

FINIALS



PEW-ENDS

DOOR



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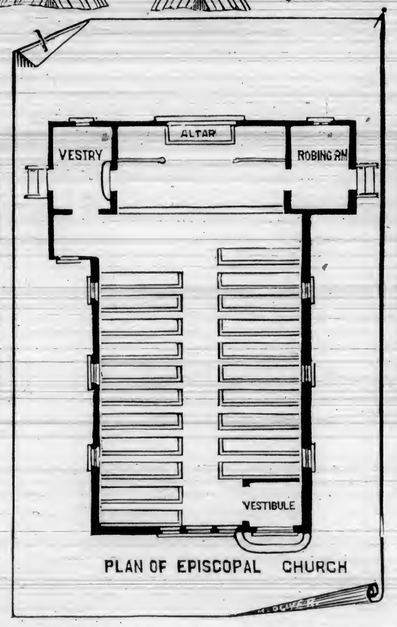
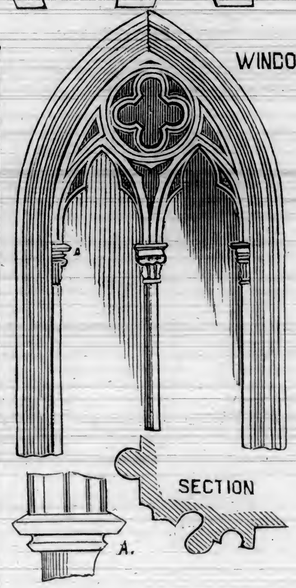


PLAN OF EPISCOPAL CHURCH

WINDOW



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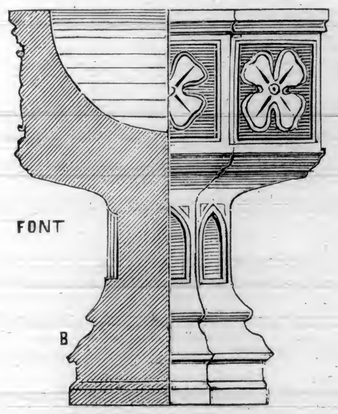

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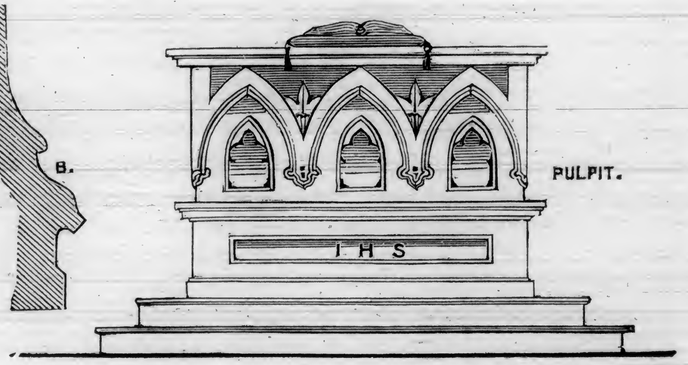

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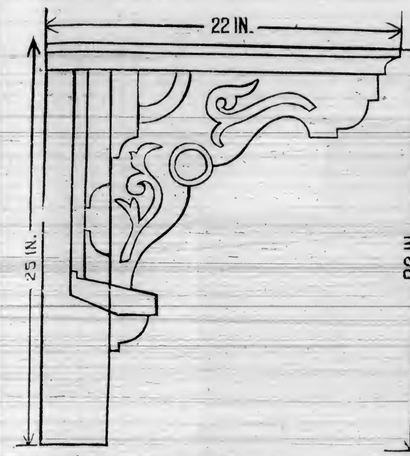
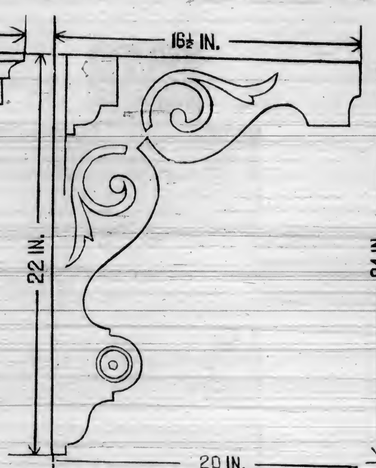
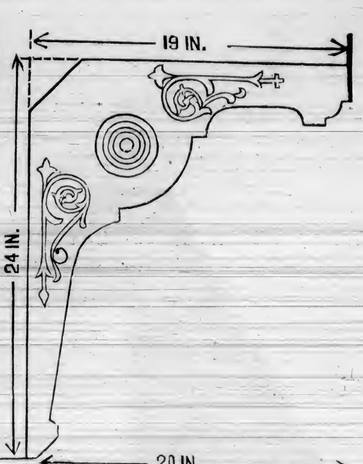
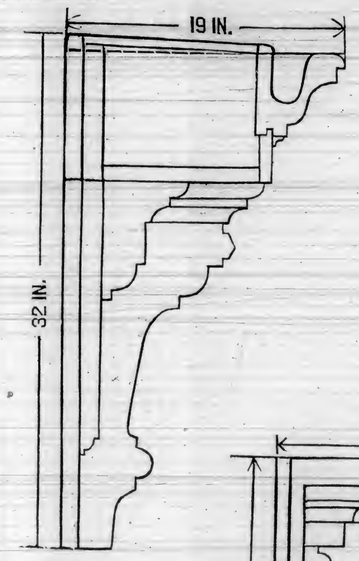
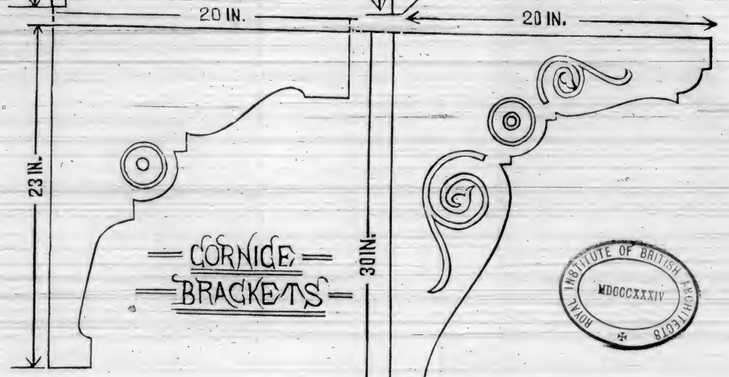


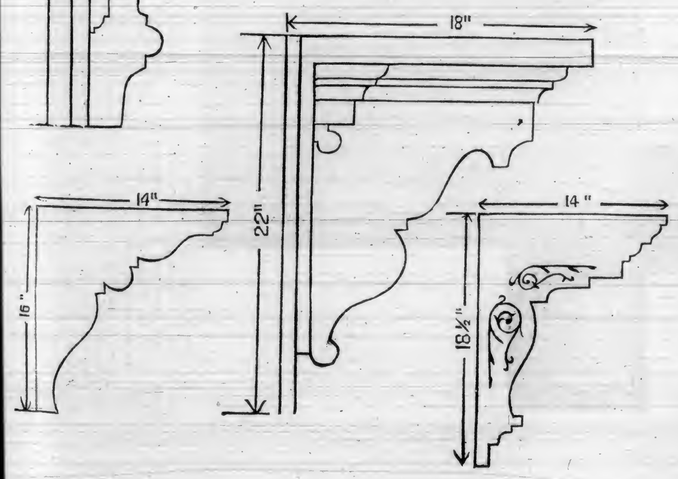


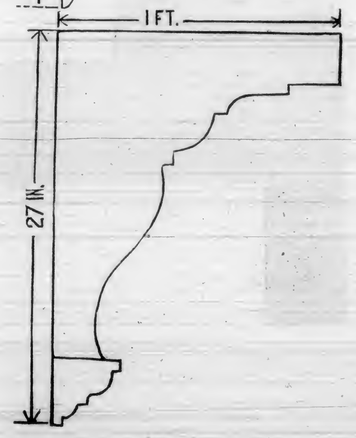






CORNICE BRACKETS





ROYAL INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIV

We have thought that it might be to the advantage of our architects to present to them once in awhile drawings of our standard railway constructions. The engraving above shows a roof truss and a cross section of one stall of an engine-house, which is used altogether by the Pennsylvania Central R. R., and the Pittsburg, Fort Wayne and Chicago R. R. In economy of construction, true proportion of parts, ample strength, and workman-like manner in which the roof and building is put together, we think these engine-houses cannot be excelled.

They are built in a circular form, with a number of stalls in accordance with the requirements of the road, from 20 to 46 stalls. Two of these stalls are used, one for ingress and the other for egress.

A turn-table is built in the centre, which revolves by means of a hand gear turned by a boy, even when a locomotive is on it.

The pilasters between the doors of the stalls are of castiron, filled with masonry. The water arrangements in the engine-house are perfect. A supply pipe runs around the house, below the frost line, and a faucet in each stall permits water to be drawn for the cleaning of the locomotives; a discharge pipe runs from the end of the inclined floor of the pit, to the egg-shaped sewer, which discharges in the main sewer.

We think it useless to enter into a description of the structure itself, as the details and dimensions are so plain, that any architect or mechanic used to the perusal of drawings can understand them at once.

[Through the kindness and courtesy of one of our most distinguished civil and mechanical engineers, we are enabled to present to our readers, the drawings, description and details of various buildings connected with the interests of railroads,—the first of the series being shown in the above engraving. We were led to the idea by receipt of numerous inquiries from friends in different parts of the State, concerning turn-tables; the manner in which they were operated; how it could be possible a boy sixteen years old could operate one with a locomotive upon it, etc. Although out of our line we will endeavor once in awhile to present various sketches that will, no doubt, be interesting to most of our readers.—Ed.]

Plumbing Materials and Plumbing Work.

It is becoming evident to those familiar with the course of events in the building trades, that great and important changes are taking place in the plumbing business. A few years ago the plumber monopolized the business of selling plumbing materials to the builder and house owner. The manufacturer and jobber "protected" him, and his discount, sometimes larger and sometimes smaller, was something no one but a plumber could get. At that time he was also to some extent a manufacturer. He made his own traps, lined his own bath tubs, and made a good many necessary things entering into the piping of a house which were not to be had in open market. Some of them abandoned plumbing and became manufacturers; outsiders went into the business; and the competition thus induced has had a marked influence in improving and diversifying the line of goods known as plumbers' supplies. Gradually still another class multiplied and gained prominence—that of general dealers in plumbers' supplies. Most of these manufacture or control one or more patented specialties, but they sell anything the trade wants, and in the principal centers of business the competition in this line is about as sharp, and profits are cut as closely to secure trade, as in any other. These dealers sell to anybody, and have no interest in protecting the plumber, except on their private specialties—and on these only because they believe that it is to their interest to secure and retain the favor of the trade, to assist them in introducing goods which could not otherwise be sold except at ruling market prices for articles of the same class. Many of these specialties are valuable and desirable improvements; but the builder or owner can buy about as cheaply as the plumber everything needed for the complete plumbing of a house, cheap or costly, and is doing it to an extent never before practiced.

Trades and guilds are always conservative and tenacious of established custom. Naturally, the plumbers object to having their trade in materials taken away from them, and are protesting vigorously against the loss of the profit they have hitherto made as retailers. Their continued demand for a percentage on materials used, whether they buy them or not, is absurd and unreasonable; and puts them in a position analogous to that of the carpenter who should demand a percentage on all the timber used in a building on which he worked, or a mason who should demand a percentage on the bricks in the foundations or chimneys. The builder or owner, as the case might be, would indignantly refuse a request so unreasonable. In the case of the plumber there is no reason to suppose that it will receive any more favorable consideration.

The plumbing trade is one calling for more intelligence and more mechanical ability, even in the journeyman, than any other that is generally practiced at the present day. It is a trade upon which the life and health of the community depend. It is an indispensable branch of the arts which go to make up our civilization. It is absurd in the extreme, therefore, to undertake to reward those engaged in it by a system which constantly tends to fraud, poor workmanship and shystering generally, instead of rewarding them according to their merits. The plumber is in no sense a retailer. He has practically no stock on hand, and he does not sell across the counter. He who would attempt to make a living in this way would starve to death. The plumber's work is a double one. He is a mechanic, when considered in his work of putting in pipes, setting fixtures and wiping joints; and he is also a sanitary engineer, when we consider his task of designing the work, overseeing the men, and watching every inch of pipe put up and every joint that is made, to be sure that all is tight. On his intelligence, honesty and vigilance depend the health and lives of those who are to use his work.

Now, if in order to obtain pay for these invaluable services, he has to leave his men and attend to the purchasing of supplies in the cheapest market, and run here and there to get the thousand little things that are necessary, he is doing something which is taking him away from the very work which he is paid to do. He is no longer the engineer or superintendent whose brains are wanted, but a middleman whose services are of no considerable value. It were better, in fact, to pay retail prices twice over, and keep this plumber where he belongs, than to have him try to run a two-cent retail business in connection with his trade. Indeed, the fact that this has been the common method of doing work, is one of the reasons why the trade is so poorly paid. If the plumber who undertakes the work in a house could draw up his plans and then hand to his client a specification, saying: "I want these things to complete this job," he would at once be placed in a vastly better position than at present. Such a position for the leading men of the trade is certainly desirable. They will then rank with other professional men, and be able, on account of their superior value, to command the remuneration which they deserve.

There is still another side to this question, which appeals still more closely to the plumber. There are in every large city a great many boss plumbers having small capital, who are first-class workmen. They are able to design and carry out the largest job to be found in city or country. These men complain that they cannot undertake more than one or two jobs at a time, because they have not a sufficient amount of capital or credit to buy the materials needed and pay their men. In conversation very recently, one of this class remarked that he did not dare to assume the responsibility of buying much material, fearing that before he could make his collections on the finished work he would be swamped by this necessary outgo. This man is now obliged to work along with one or two good-sized jobs, while he is amply able to carry on twice the amount of work but for this unfortunate necessity of being both dealer and plumber. As a class, plumbers have a very low rating on the books of the mercantile agencies. They have nothing in the way of stock, fixtures or plant which represents invested capital; and a leading jobber of plumbers' supplies remarked not long since, that there were not more than half a dozen plumbers in his whole list of customers to whom he would sell a hundred dollars' worth of goods on credit, without some other security than their notes.

Let us now suppose that, instead of burdening himself with the purchase of all the materials he is using, the average plumber with small capital leaves that responsibility where it properly belongs, with the builder or the owner, as the case may be: what would be the result? Instead of one or two jobs at a time, he might be carrying on ten or a dozen. His capital and ability would be ample for the work itself: but when he undertakes to be a storekeeper, and supply all the stuff that he is smart enough to use, he is at once limited in his work. Instead of having a large income from the use of his brains and knowledge, he is getting a very small one from playing jobber on a nominal capital and a small credit. Men in this position are not exceptions to the rule. One of them whom we know well and greatly respect, is employing three or four men and doing no little work with his own hands; and yet he is capable of undertaking and personally carrying out as extensive works of plumbing as have ever been done in this country. The system itself prevents him from rising, because he has not the capital necessary to supply large amounts of material. The whole system by which plumbing work has been, and is being largely, done at the present day, injures and degrades the plumbers. They are essentially mechanics and engineers, and the mental effects of trying to squeeze a 25-cent profit from between the lines of a bill amounting to a dollar, have not been beneficial.

We have no quarrel with the plumbers. On the contrary, we want to see them placed in a position where they may elevate themselves and their trade. As the business is at present managed, they are trying to get a fair income from the most picayune practices. Men who should have an income of thousands are working hard for the gains of a very small retail trade, combined with their business. Other men are seeing that this is too small a business for them; and abandoning the shopkeeping, are undertaking to do work, and furnish the brains to superintend it; and when the work is done, they have a large and well-deserved profit—not from what they have saved and skinned or overcharged, but as pay for their skill and ability. If the plumber is paid at all, he should be paid for what he does, and for the knowledge and experience which the art requires. If first-class men would take this position, and abandon trade altogether, they would not only be the gainers in actual income, but they would kill, to a great extent, the "snide" or "skin" plumber, who has been for so many years the bane of the trade. These men have made large profits on materials and ignorance. They have used the latter article as so much stock in trade, and charged for it accordingly, though it has not always appeared in the bill.

The future of the trade is of great interest to us, and we expect to see, within a comparatively short time, vast changes take place in it. The most important of these will be in the direction of better education, more science, and a corresponding increase in the profits. In other words, the trade, as a whole, will be better paid. Those who cannot rise to be leaders must, however, sink to the level of mere workmen; but even among them we shall expect to find greater skill, better wages, and better work. Meanwhile, those of them who persist in trying to retain at the hands of the trade the "protection" they claim, will have their trouble for their pains. The trade in plumbers' materials is much too large, and the competition much too sharp, to be controlled by the plumbers. The builder and the owner will not pay the plumber a profit on materials, when they can buy as cheap as he can—and often cheaper, if they have cash or unquestioned credit, and buy largely enough to be recognized as desirable customers by dealers. The plumber will have to make his profit on his work, and when he has nothing else to attend to he will do better work, and be much more intelligently critical as to materials, than it has hitherto been to his interest to be.—*Exchange*.

How the French Workman Lives.

The French laborer probably gets more for his wages than any other. His food is cheaper and more nourishing. His bouillon is the liquid essence of beef at a penny per bowl. His bread at the restaurant is thrown in without any charge, and is the best bread in the world. His hot coffee and milk are peddled about the streets in the morning at a sou per cup. It is coffee, not slops. His half bottle of claret is thrown in at a meal costing twelve cents. For a few cents he may enjoy an evening's amusement at one of the many minor theaters, with his coffee free. Sixpence pays for a nicely cushioned seat at the theater. No gallery gods, no peanuts, pipe, smoke, drunkenness, yelling or howling. The Jardin des Plantes, the vast galleries and museums of the Louvre, Hotel Cluny, Palace of the Luxembourg, and Versailles, are free for him to enter. Art and science hold out to him their choicest treasures at small cost, or no cost at all. French economy and frugality do not mean that constant retrenchment and self-denial which would deprive life of everything which makes it worth living for. Economy in France, more than in any other country, means a utilization of what America throws away, but it does not mean a pinching process of reducing life to a barren existence of work and bread and water.—*The Illustrated Scientific News*.

Our Illustrations.

The cut representing car-house, turn-table, truss-roof, etc., is sufficiently explained in the description accompanying the same.

The plan of Church Edifice is one of a style and class most favored by the Episcopal denomination, and is not expensive in construction, conveniences and appearance considered. The plan is susceptible of modifications or elaborations. The various features of special interest—plan, doors, windows, altar, font, finials, pew ends, etc.—are also shown.

The plate showing styles of roof-brackets explains itself. We regret that better facilities do not exist in San Francisco for the production of finer cuts; but, in time, we hope to make arrangements which will enable us to satisfy ourselves, and when this is accomplished our readers will have no cause for fault-finding, as nothing short of the really good will meet our personal views and purposes.

A Cheap and Efficacious Deodorizer.

A pound or two of "Green Copperas" thrown into privy vaults, cesspools, and other receptacles of offensive and decaying matter, will "sweeten things" considerably. Dissolved in water, and while hot, if run through waste and soil pipes and sewers, it will purify them, and destroy the poisonous coatings which gather in all conduits of discarded fluids.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

SAN JOSE, March 3d, 1881.

ED. CAL. ARCHITECT AND BUILDING REVIEW.—Please inform a subscriber whether or no inside blinds will turn dark when simply oiled and varnished. If a size is required, of what material, and of what strength should it be? also what is the best way to finish—with oil or varnish? Yours respectfully.

ANS.—The effect of oil upon any kind of wood will cause it to "turn dark." Varnishing upon an oiled base, simply modifies, but does not prevent the darkening. The natural color of woods is better preserved when varnish is used without the oil. In our practice, we have usually adopted as a finish upon unpainted blinds, a coat of *white glue size*, worked warm, with considerable glue body, followed by a coat of varnish. If two coats of varnish could be properly applied, we should prefer varnish as a first coat, in place of the size. But to varnish properly, the preceding coat should always be sandpapered or pumiced before the additional coat is applied. This could not be conveniently nor well done in the case of inside blinds. The glue size and varnish answers a good purpose in the generality of cases. Some use shellac as a first coat, but this tinges the wood more than the glue size. If a really "fine finish" is desired, it can be secured more perfectly by "French polishing" the slats before they are cut. In any case the best of materials are necessary for a good finish.

RED BLUFF, CAL.

MESSRS. WOLFE & SON.—Can you inform me of a remedy for an echo in a room? My bank is very large and high, and has such an echo that it is very hard to talk, if any distance from each other. I have considerable furniture in it—all that I require—and still it is bad. You will confer a favor if you can say just anything to stop it. Yours, etc.,

H. KRAFT.

ANS.—It is difficult to advise remedies in such cases without a personal inspection of the premises, as echoes are the results of various causes. "Large and high" suggests the cause in your case—particularly the "high" feature. When ceilings, or height of stories are excessive, in comparison with the other dimensions, echoes are certain to occur. Recesses in walls, dome in ceiling, alcoves and the like, all tend to create or increase this objectionable defect. In some cases, a wire netting suspended at proper height, forming a suspending net, canopy or ceiling, has had the desired effect. In other cases, stretching numerous wires from wall to wall has proved effective. As an experiment, you might try the effect of a ½-inch mesh-wire netting over the portion of the room where the most talking is indulged in. A certain remedy would be found in reducing the height of permanent ceiling to proportions comparative with the length and breadth of the room. Even with proper proportions in height and sizes, the smoother the walls and ceiling, the better. Sound, like water, smoke, etc., runs more smoothly through smooth channels. The brook that runs placidly over smooth sandy bottoms becomes turbulent and noisy in passing over rough and rocky places. This echo difficulty is one of very common occurrence; and we shall be pleased to hear from any of our readers upon this point.

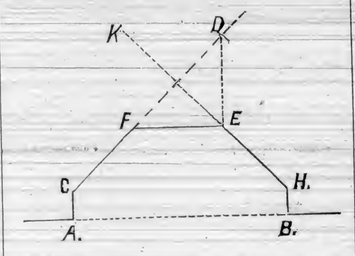
ED. ARCHITECT.—I have closely watched your journal from its inception, and have noticed that nearly every topic has been commented upon for which your periodical was established. There is one subject, however, which I would be pleased to see you bring before architects for discussion, (perhaps you could introduce it in your architectural society, which I understand you have formed), and that is: Are ARCHITECTURAL COMPETITIONS conducive to the best interests of the profession? Would be pleased to hear from you in your next.

SUBSCRIBING ARCHITECT.

We thank our brother professional for the suggestion, and will in our next have something to say upon the subject; and hope all our architects will forward us their views, as they may be led to express them from reading our articles.

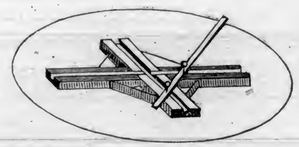
BUS. MAN. OF ARCHITECT.—Is there a quicker method of finding the length of the sides of a bay-window, drawn on paper, than the old way of spanning around with a pair of compasses, till you get the three sides equal? R. G.

ANS.—The cut will explain a very *neat way*.



Extend C F or E H; lay off on the line C D a distance equal to the width of your window as A B. At D drop a perpendicular, and at the point where it intersects E H, as at E, draw E F, parallel with A B.

ALL MACHINISTS, APPRENTICES, MECHANICS AND STUDENTS who wish to obtain a practical knowledge of the Rules of Draughting, should send to this office for a copy of a work entitled PRACTICAL DRAUGHTING, *by Pemberton* The mechanic, particularly, should not only be able to work practically, but also to design practically; he should be able to express his designs, his improvements and inventions upon paper. The practical instructions given throughout the book are in plain comprehensive terms. Price $1.00 per volume.



We have received several inquiring letters in regard to the methods we gave in our last for drawing an ellipse. One of our correspondents went so far as to send us a drawing of a "*trammel*," claiming it as a method which was only known to himself. If he had added, "and to his grandfather before him," it would have been nearer the truth. We give above a cut of the "trammel," and any mechanic can easily perceive how simple it is to put together a little instrument by which an ellipse of any size can be perfectly made.

BUS. MAN. OF ARCHITECT.—In the January number of your journal is an article entitled: "A National Monument in honor of the late King, Victor Emanuel. Where and to whom should designs for the monument be addressed. INDIANA.

ANS.—Each set of plans should be carefully packed, and to be sure to have no mark upon them by which the name of the designer or architect would be known. Use a "nom de plume," or any term you wish to designate your name. Direct to the "*Minister of the Interior, Rome, Italy.*"

BUS. MAN. OF ARCHITECT.—Please state if a 4x12 joist will sustain twice the weight of a 2x12, the span and all conditions being the same.

SUBSCRIBER, Sebastopol.

ANS.—You change the *conditions* by changing the size of your timber. *Width* of timber is the desideratum necessary to strength. I do not think that a 4x12 will sustain double the weight of a 2x12. Would like to hear from any of our readers who have made a *practical test* of the above question.

BUS. MAN. OF ARCHITECT.—I was asked in company, the other day, the meaning of Architecture. I answered in the Websterian style: Why, the art of building. What is your definition?

AMATEUR SKETCHER.

ANS.—"Architecture is the art which so disposes and adorns the edifices raised by man, for whatsoever uses, that the sight of them may contribute to his mental health, power, and pleasure."

The Helping Hand.

We ask ONE and ALL of our kind friends and patrons to assist us in the matter of subscriptions and advertisements. In doing so, they will each receive full recompense in the ENLARGEMENT and IMPROVEMENT OF THIS JOURNAL. The past does not fully illustrate the future, and we hope ere long to be in a position to inaugurate and perfect all the contemplated better things which will come to pass—a part of the programme laid out by the founder of the CALIFORNIA ARCHITECT AND BUILDING REVIEW. We have received congratulations from a thousand sources, and flattering notices from scores of Journals published on this coast, and east of the "great divide," but that which we require most is, MANY THOUSAND MORE SUBSCRIBERS. We have done the best we could under the circumstances, but with the enlarged circulation secured, for which we ask and aim, we shall produce a California Journal which in all the departments of architecture, mechanical and other sciences, and matters sanitary, hygienic, etc., will be a source of pride and instruction to the people of this coast.

American Barrels.

In Detroit they have patented a new sort of barrel, the body of which is all made in one piece, from coarse wood pulp. The pressure to which it is subjected is four hundred tons. The heads are made of one piece in the same way, and when put together the barrels are exceedingly light, strong, and satisfactory every way. There are two kinds: one for fruit, flour, and other dry substances; the other for oil, lard, and liquids of all kinds. A flour barrel made in this way, and filled, can be dropped from a wagon to the pavement without injury. Fruit packed in these receptacles keeps longer than when put up in the usual way, being dry and excluded from the air. The barrels for liquid substances are made by subjecting the first form to a simple process, and oil can be kept in them without any leakage. The saving in cost is about fifty per cent.—*Journal of Applied Science.*

Practical Test of Railway Brakes.

In a recent experimental test of the Westinghouse Air-brake on a Brazilian railroad, some practical joker, without the knowledge of the engine-driver, had placed on the track, in advance of the train, an excellent imitation of a huge mass of rock, made of painted pasteboard. The obstruction was not discovered until the engine was close upon it, but the driver succeeded, nevertheless, in stopping his train within a few feet of it. The joke was rather trying to the nerves of the driver, but afforded the best possible demonstration of the value of the brake. The Emperor Dom Pedro, it is narrated, was a passenger on the train to witness the experiments, and, it is hinted, was cognizant of the trick.—*Druggists' Circular and Chemical Gazette.*

Exchanges.

The fact that we are receiving almost daily additions to our already extensive list of exchanges, illustrates the increasing popularity of this Journal, and its wide-spread circulation in all parts of the country. In addition to those noticed in former issues, we add, with pleasure, our new and welcome visitors:

THE AMERICAN MACHINIST.—"A journal for machinists, engineers, founders, boiler-makers, pattern-makers, and blacksmiths." It is published by the American Machinist Pub. Co., N. Y., with Mr. Jackson Bailey, editor. We find in its columns a large amount of interesting and instructive matter.

THE SCIENTIFIC NEWS.—"A record of the Sciences, and their application in the Arts and Industries." Its illustrations and reading matter are excellent. Published by Munn & Co., N. Y.

THE WESTERN HUB, published by the "HUB PUBLICATION CO.," N. Y. It is devoted to the carriage, buggy, etc., industries, and is full of handsome illustrations and reading matter, relating to the manufacture of vehicles of every description.

THE DRUGGISTS' CIRCULAR AND CHEMICAL GAZETTE, published by John Newton, N. Y.

GOOD HEALTH.—"A journal of Hygiene, devoted to Physical, Mental and Moral Culture." Published by the Good Health Publishing Co., Mich. A great deal of excellent reading matter may be found in its columns.

THE PHRENOLOGICAL JOURNAL AND SCIENCE OF HEALTH, published by Fowler & Wells, N. Y. It is a monthly magazine, devoted to the study of Human Nature in all its phases.

THE PAPER WORLD, published by Clark W. Bryan, Holyoke, Mass. Devoted to the paper interest, and containing a great variety of valuable matter.

THE MATHEMATICAL VISITOR, edited by Artemas Martin, A. M., member of the London Mathematical Society, issued semi-annually. To all parties specially interested in mathematical studies and problems, it commends itself in a special manner. No. 5, of Vol. 1, displays masterly abilities on the part of its editor, and contains a large amount of interesting and instructive figurations.

THE AMERICAN SHIP.—Devoted to "American Industries, Nautical Commerce, Ship Building, Engineering, Navigation, Insurance, Yachting, and Naval Interests." Published weekly, in New York, at $3.00 per annum. It is ably conducted, and thoroughly interesting and instructive.

THE LUMBER TRADE JOURNAL.—"A newspaper for the Foreign, Colonial and English Timber, and the Mahogany and Hardware Trades." It is full of interesting matter and statements in connection with the special objects of its publication.

The Origin of the Lien Law.

Compiled expressly for the Architect and Building Review.

BY L. W. FRISBIE.

The law of mechanics' liens, as we have it in existence to-day throughout the United States, is particularly an institution of this country, and was unknown in the earlier nations in the same manner and to the same extent as it now prevails with us.

There were, however, many of the fundamental and underlying principles of our law in vogue in England before our time; these were the creation of the civil law of that country. Domat, in his treatise on the civil law, says: "Architects and other undertakers, workmen and artificers, who bestow their labor on buildings or other works, and who furnish materials, and in general all those who employ their time, their labor, their care, or furnish any materials, whether it be to make a thing or to repair it, or to preserve it, have the same privilege for their salaries and for what they furnish as those have who have advanced money for these kinds of works, and which the seller has for the price of the thing sold." The privilege of the seller here referred to is thus defined by the same learned authority: "He who has sold an immovable thing, *for which he has not received the price*, is preferred before the creditors of the purchaser, and before all others *as to the thing that is sold.* Thus the seller who has not received the price may follow it, (the thing sold) into what hands soever it may have passed, if he has delivered it before payment." Again: "The creditor, whose money has been laid out in preserving or repairing the thing, has a privilege, for he has preserved the thing; it being for the common interest, both of the proprietor and creditors; and it is, as it were, his own to the value of what he has laid out upon it." And again: "If a third person lends to an architect or other undertaker money which is laid out on a house, or any other work, and said money has been advanced by order of the master for whom the said work is to be done, this third person shall have the same privilege as if he had lent the money to the master himself for that use. But if the money was lent without the master's knowledge, or without his order, and if the master has paid the undertaker, he who has lent the money will have his action *only* against the *person to whom he lent it.* But, if the master has not paid the undertaker, this person may use the privilege, whether he has lent the money with the master's order or without it." Sir Thomas Tomlin defines undertakers as "such as the King's purveyors, employed as their deputies. The name is given in several statutes to persons who undertake any great work, as draining of fens," etc. Clearly, the contractor under our law, and the undertaker under the English law, are the same. It will thus be seen that in England a PRIVILEGE attached only to the thing itself over other creditors; while in this country a LIEN attaches not alone to the thing, but to the land. The American system is purely statutory, and derives nothing of its origin from the civil law of England.

Speaking of the legislative foundation for a lien law, Mr. Phillip, says: "None were ever adopted, and none to this day are to be found on the statute books of Great Britain, securing in any manner to the mechanic or material man a lien on the buildings which their industry or capital have contributed to erect." The necessity for a lien law arose undoubtedly from two causes: First, all absence of even the remnant of the hampering and cumbersome feudal land system, and the fact that here the land was coming in the possession of the masses; while in England the landed estates were held only by the few; and second, the necessity to aid in the rapid improvement of the land, by giving to the mechanic and material man, whose work and materials were the necessary means to such improvement, full security for the value of his labor and the materials which he might furnish. On September 8th, 1791, the Commission appointed to improve as speedily as possible the city of Washington, as the permanent seat of the National Government, adopted a memorial, from which we quote: "Your memorialists conceive it would encourage master-builders to contract for the erecting and finishing of houses for certain prices agreed on, if a lien was created by law for their first claim *on the house erected, and the lot of ground on which it stood.*" On December 19th, the General Assembly of Maryland passed the first distinct and definitive law in this country. The first law was, however, very meager and crude, and by no means as useful as that which to-day forms part of the statute law of every State in the Union.

This law was at first greatly disliked, and met with opposition in the courts and in the legislative bodies; yet it has steadily grown in favor, until its importance and benefits are acknowledged alike by both. There is yet much room for advancement before that point is reached; and a law is upon our statute books which, giving an undue advantage to some, recognizes and protects the rights of all.

It may not be out of place, then, to say that this important law, which was created in 1791, had for its mother the principles of the civil law of England, as we have stated; and for its father the minds of Jefferson and Madison, both of whom were at that time members of the Commission which recommended the passage of such a law.

And so it is that to-day we have in this State a lien law, a creation of the Constitution, and an enactment of the Legislature. On page — will be found the text of such portions of the law as it will be at all necessary to keep before us.

Testing Drain Pipes.

A writer in the *Ironmonger*, from long practical experience in testing drain pipes, confidently recommends for that purpose what he terms a "smoke test," and which gives evidence as to leaks both to sight and smell. The materials that he employs are soiled cotton waste and sulphur, the smoke from which after ignition is blown into the drain or pipes. If leakages exist in the latter inside of the house, the smoke and smell both issue forth and show that something is wrong, and generally tell also just where the fault or faults are. Sulphur, as well known, is one of the best disinfectants, and a dose of the fumes from this to the drains, after disease has been in a house, would effect much good—*Ill. Scientific News.*

IN OUR March issue we presented the correct facts connected with the building interests in San Francisco. Since then nothing has developed to justify a more favorable statement of conditions. Our "Building Intelligence" report shows the movements consummated during the past thirty days.

It would be more pleasing to write up glowing accounts of "booms" in building operations, but until reliable facts warrant such a course we shall do no such thing, leaving fictitious and unreliable statements in this connection for the columns of the *Evening Bulletin* and other journals, which have from time to time put forth *positive statements* in regard to building improvements, which, in actual facts, contained not ten per cent. of correctness. This "writing up" booms for effect's sake may be wise, but we fail to discern the wisdom feature; and shall, therefore, confine ourselves to sustained and assured facts, even if by so doing we are compelled to chronicle extreme dullness, or only moderate activities. Moderate, with fair prospects, is the more proper term at the present time.

In this connection we quote from *Magee's Real Estate Circular* for April:

"There was rather more activity in the real estate market last month, but there was no improvement in prices. The latter have not been lower within seven or eight years. Where sellers are determined to realize, they can do so only by more or less heavy sacrifices. It should distinctly be understood, however, that properties thus sold are not an index of the general state of the market. If any late buyers were to attempt to duplicate their purchases in adjoining property, or in the immediate vicinity, they would quickly discover the impossibility of doing so. There has recently been much more inquiry for a fine class of residences, at $10,000 to $15,000 each, and for fine residence lots at about the same prices. Sales of lots to the poorer classes, at $1,000 to $2,000, have been dull for a month past. There is not so much inquiry for business investments. All persons interested in real estate are anxiously waiting to get some indication of what the next tax rate is likely to be. That question will have an important bearing on the real estate market. The total number of sales made in March was 267, of the value of $1,629,615."

Market Reports.

PAINTS.—The local market has almost driven competition away. This is as it should be, as it is on our manufactures that San Francisco must look for her future welfare. There is a very good demand, with large stocks on hand.

HARDWARE.—A moderate demand only for building materials, although the demand in other lines is exceptionally good. Nails remain the same.

NAILS.

10 to 60	pennies, are quoted at		$3 70
8	"	"	3 95
6	"	"	4 20
5 and 4	"	"	4 45
4 and 5	pennies, brad heads, at		4 95
6	"	"	5 20
8	"	"	4 95
10 and upward		"	4 70
3 penny fines		"	7 20

GLASS.—Prices remain the same as our last report. A full stock is on hand.

LUMBER.—Receipts to date have been much the same as they were a year ago. The market, however, is much brisker and the prospect much better than it was at that time, although as yet the *building boom* has not commenced; consequently the demand for building that was so confidently expected at the beginning of the year, has not as yet sprung up. Receipts of Lumber since January 1st:

Lumber, feet	43,023,782
Shingles, No	11,173,510
Laths, No	5,034,500

A correct price list of lumber will be found below.

Pine.		
Common Rough, up to 40 feet, per M feet		$21 00
" 41 to 50 " "		22 00
" 51 to 60 " "		23 00
" 61 to 70 " "		25 00
" 71 to 80 " "		27 00
Refuse Rough		17 00
Common Rough, sized with planer $2 additional on above rates, per M feet.		
No. 1 Flooring, 6 inches and over,	"	28 00
" " 4 " and under, and 1¼x4 and 1¼x6 Flooring and Stepping	"	30 00
Rough Clear for Flooring, $1 00 less than above rates.		
Second Quality Flooring and Stepping, per M feet		22 50
Ship Plank, Rough, per M feet		26 00
" Planed 1 side	"	30 00
" " 2 sides	"	32 00
Deck Plank, Rough	"	31 00
" Dressed	"	35 00
Laths, per M		3 50
Wool Slats	"	10 00
Shakes	"	9 00
Redwood Posts, per piece		11
Redwood.		
Rough Merchantable, per M feet		21 00
" Refuse	"	17 00
Surface No. 1	"	32 50
" 1 x 6	"	30 00
" No. 2	"	25 00
Rustic, No. 1, 1 x 8	"	30 00
" No. 1, 1 x 10	"	32 50
" No. 2	"	27 50
" under 10 feet	"	27 50
T. & G., 1¼ x 4 and 1¼ x 6	"	32 50
" 6 in, 12 ft and over	"	30 00
" 7 to 11 feet	"	28 00
" under 7 feet	"	25 00
" No. 2	"	25 00
T. & G., Beaded, 12 ft & over, per M feet		32 50
" " 7 to 11 feet	"	28 00
" under 7 feet	"	25 00
Half-inch Surface	"	27 50
Pickets, Fancy	"	25 00
" Rough, pointed	"	18 00
" " square	"	15 00
Siding, ½ inch	"	22 50
Shingles, per M		2 25
Battens, ½-inch, lineal feet	"	¾c

Building Intelligence.

The past month has been an unusually dull one, as far as letting of contracts is concerned. We do not remember of a month, even in the dull year of 1880, that showed such a remarkable quietness in building operations as the month that has just passed. The promised boom, so confidently expected at the beginning of the year, has not as yet made its appearance. While the city shows such a dullness in building, our country advices from most every quarter report that the present season starts with more building operations and better prospects for their continuance than any time for the past five years. Oakland is worse than San Francisco; architects have had very little to do there for some time; but they are hopeful, and waiting for better times. Her twin sister, Alameda, on the contrary, shows a lively feeling in regard to the erection of residences, and almost on every hand is heard the carpenter's hammer. The new buildings at the end of the mole, at the West Oakland Point, will be started some time during the month, and give employment to a large number of mechanics. A great many architects in this city have plans prepared for buildings, which would go ahead if the owners could get them built for a few hundred dollars less than the bids. A little concession on the part of owners would cause a great deal of work to commence that is now held in abeyance. We do not think that houses can be built any cheaper than the bids call for without *some one* being swindled.

SAN FRANCISCO.

One-story brick building on north side of Post street, between Montgomery and Kearney. Owner, S. Mosgrove; architects, Wright & Sanders; contractor, —— Quinn. Cost, about $20,000.

Three houses, stores and dwellings) corner of Mission street and Lafayette place, and three two-story dwellings on Lafayette place. Owner, F. McMurray; architect, A. A. Bennett; contractor, F. Crowley. Cost, $12,000.

Two-story and basement dwelling on Bush street, between Webster and Fillmore. Owner, Mrs. Wafer; architect, W. P. Moore. Cost, ——.

Alterations to scouring house of Falkner, Bell & Co. on Sixth and Townsend streets. Architect, H. Mitchell; contractor, James Geary. Cost, $2,000.

One-story building on Main street, between Howard and Mission. Contractor, —— Hennessey.

Two-story dwelling on the corner of Scott and Haight streets. Owner, J. D. Feldman; architect, H. Geilfuss; contractor, F. Klatt. Cost, $8,650.

Two-story house with brick basement for bakery on Valencia between Twenty-fifth and Twenty-sixth streets. Owner, Peter Kall; contractors, Walker & Grant; architect, H. Geilfuss. Cost, $4,750.

Sixteenth street, between Valencia and Mission, hall and stores. Owner, J. A. Goldman; architect, H. Geilfuss; contractors, Walker & Grant. Cost, $4,600.

Five-story brick building for malt-house on Brannan street, between Fifth and Sixth. Owner, H. Swieg; architect, W. Winterhalter; contractor for brickwork, C. Worral. Total cost, about $10,000.

House on the corner of Polk and Geary streets has been raised, and a new story for a store added. Day's work.

Three-story addition to the wagon shop on Market street, between Ninth and Tenth.

Four two-story frame dwellings on the corner of Gough and Fell streets. Owner, C. G. Moxley; architect, J. J. Newsom; contractors for brickwork, Sandford & Lundberg; carpenter work, Thompson & White. Total cost, about $7,000.

West side of Dupont street, near Sacramento, two-story brick building, to be used for stores and work-shop in rear. T. J. Welch, architect. Cost, when completed, in the neighborhood of $12,000.

One-story building for stores on Butte street. Owner, Robert Day; architect, T. J. Welch; contractors, Smith & Laherty. Cost, $1,425.

One-story dwelling on Clara avenue, between Sixteenth and Seventeenth streets. Owner, Mr. Kearney; architect, T. J. Welch; contractor, Geo. Hansbro. Cost, $2,600.

The Lynch monument has arrived, and is being placed in position. Architect, T. J. Welch.

Two-story brick building in the Corporation Yard, Sacramento street near Drumm. Owner, City of San Francisco; architect, P. J. O'Connor; contractor, John Hughes. Cost, $20,713.

Alterations of building on south side of Hayes street, between Franklin and Gough. Owner, H. Levy; architects, Curlett & Eisen; contractor, H. Parker. Cost, $1,700.

OAKLAND.

Cottage house of 5 rooms and bath on Eighth street near Wood. Owner, W. Huntington; contractor, Mr. Cougan. Cost, $1,600.

One-story frame building for store on the corner of Webster and Ninth streets.

At Shell Mound Park, (race-track) additions to dining-room, pavilion, etc. H. Geilfuss, architect. Day's work. Cost, about $1,500.

ALAMEDA.

Two-story frame dwelling on Central avenue near High street. Owner, Peter Sather; builders, Gilbert & Brown. Cost, $5,500.

Two-story frame dwelling on Willow street. Owner, ——Coburn; contractor, —— Lemmier. Cost, $2,200.

Cottage on San Antonio avenue near Chesnut. Owner, G. W. Kneedler; builders, Gilbert & Brown. Cost, $1,000.

Corner of Santa Clara avenue and Walnut street, cottage of 5 rooms. Owner, F. Lawrence. Cost, about $1,000.

PORTLAND, OREGON.

Three-story brick building for bank and office uses. Owner, Captain Ainsworth; architect, Clinton Day. Total cost will be in the neighborhood of $45,000.

PORT COSTA.

Two-story frame cottage on the Eckley ranch. Owner, F. E. Eckley; architects, Curlett & Eisen; contractor, T. J. Hamilton. Cost, $2,500.

SAN RAFAEL.

One two-story frame building, corner of A and Fourth streets, stores with dwellings above. Owner, J. Lunstead; contractor, I. Shaver. Cost, $2,800.

Dwelling for Mr. Crittenden. D'Anis, builder; day's work. Cost, about $6,000.

Two-story frame dwelling of 9 rooms. Owner, D. H. Whittemore; contractor, W. H. Wharff. Cost, $3,450.

SANTA ROSA.

A blacksmith shop and wagon factory, 70x90, is being erected on Fourth street.

FRESNO.

Mr. A. B. Butler is erecting a commodious farm-house near town. Architects, Meeker & Banks; contractor, H. Webber. The building will cost about $5,000 when fully completed.

Publication Notices.

We have received from Bricknell & Comstock, publishers, New York, Part No. 6 of *Modern Architectural Designs and Details*. Its cuts and illustrations are finely executed, and in character, excellent. We think No. 6 is the best of the series so far issued, and certainly worth many times its cost —$1 for each several "part," or number. We have not received orders for this work equal to its intrinsic merits. It is a *plate* work which should be in every architect's library, and one from which every carpenter and builder may glean many valuable suggestions. Also, in printed form, "Specifications for Frame Houses, ranging from two thousand to twenty thousand dollars": third edition, by William T. Hallett, Architect. They are full and comprehensive, and cover all the points involved, as much as can be in a printed form. A form of contract accompanies each set, and other valuable information of practical use to every builder. Orders for either of the above, and all other eastern publications, received at this office, where samples of each may be seen.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

THE GENERAL MERCANTILE
COLLECTION AND BUSINESS CO.
330 PINE STREET, ROOMS 11 and 12.
CHAS. EVANS, Counsel, E. P. EDSALL, Sec.
L. W. FRISBIE, Special Counsel in Lien Cases.

Mechanics' Lien Law.

"Mechanics, material men, artizans, and laborers of every class, shall have a lien upon the property upon which they have bestowed labor or furnished material, for the value of such labor done and material furnished; and the Legislature shall provide by law for the speedy and efficient enforcement of such liens."—Constitution.

"Mechanics, material men, artizans, architects, and laborers of every class, performing labor upon or furnishing material to, or used in the construction, alteration, or repair of any mining claim, building, wharf, bridge, ditch, flume, aqueduct, tunnel, fence, machinery, railroad, wagon road, or other structure, shall have a lien upon the property upon which they have bestowed labor or furnished material for the value of such labor done and material furnished. This lien shall not be affected by the fact that no money is due, or to become due, on any contract made by the owner with any other party.

"The land upon which any building, improvement, or structure is constructed, together with a convenient space about the same, is also subject to the lien. The liens provided for in this chapter are preferred to any lien, mortgage, or other incumbrance which may have attached subsequent to the time when the building, improvement, or structure was commenced, work done, or materials were commenced to be furnished; also to any lien, mortgage, or other incumbrance, of which the lien-holder had no notice, and which was unrecorded at the time the building, improvement, or structure was commenced, work done, or the materials were commenced to be furnished.

"Every original contractor, within sixty days after the completion of his contract, and every person save the original contractor claiming the benefit of this chapter, must, within thirty days after the completion of any building, improvement, or structure, or after the completion of the alteration or repair thereof, or the performance of any labor in a mining claim, file for record with the County Recorder of the county in which such property or some part thereof is situated, a claim containing a statement of his demand after deducting all just credits and offsets, with the name of the owner, or reputed owner, if known, and also the name of the person by whom he was employed, or to whom he furnished the materials, with a statement of the items, time given, and conditions of his contract; and also a description of the property to be charged with the lien, sufficient for identification, which claim must be verified by the oath of himself, or of some other person.

"No lien provided for in this chapter binds any building, mining claim, improvement, or structure for a longer period than ninety days after the same has been filed, unless proceedings be commenced in a proper court within that time to enforce the same, or if a credit be given, then ninety days after the expiration of such credit; but no lien continues in force for a longer time than two years from the time work is completed by any agreement to give credit."—Statute.

The California Architect and Building Review.

VOLUME II.
NUMBER 5. } SAN FRANCISCO, MAY, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect
AND
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE
SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion..... $1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion..... 1 25
On other inside pages, per square, each insertion..... 1 00

With reasonable reductions for larger spaces, and advertisements continued for six or 12 months.

Our July Number.

WE are looking forward to No. 7 of present volume with promising interest. By that time we expect to perfect arrangements which will enable us to issue a greatly improved journal. We shall add to its number of pages, enlarge its plate department, and so far improve its general character as shall prove gratifying to our many readers. We therefore ask the kind influence of our readers in securing new subscriptions. It requires money to produce a good book, and the sources of revenue of all journals are the subscription and advertisement receipts. Give us these sufficiently, and we will certainly give value in return. New subscribers are coming in daily from all parts outside of California, **and we appeal to the citizens of this State to make our Western Coast list fourfold its present number. It should be the ambition of every owner of real estate, architect and builder, to have this, the only journal of its kind upon the Pacific Coast, handsomely sustained.**

"Pacific Coast Association of Architects."

It affords us great pleasure to be able to announce the fact that a society has finally been organized in this city in the interest of the architectural profession upon this coast. A code of laws for the government of the association has also been adopted, with the following upon its title-page:

CONSTITUTION
AND
BY-LAWS
OF THE
PACIFIC COAST
ASSOCIATION OF ARCHITECTS.
FOUNDED MAY, A. D. 1881.

We withhold the insertion in full of the code adopted, as changes and additions will doubtless be found necessary to render them entirely complete. It is provided, in sec. 1 of the Constitution, that *"The officers of the Association shall hold office until the first Monday in May, or until their successors are elected."* Those elected for the first term—constructively to hold office until May, 1882, are as follows: President, Augustus A. Laver; Vice-President, John Wright; Secretary, George H. Wolfe; Treasurer, H. C. Macy; Admission Committee, P. J. O'Connor, W. Mooser, and T. J. Welsh.

Meetings were held April 26th, and May 3rd and 6th, the latter being the *first regular meeting* held under the by-laws, as provided, on *"the first Friday of each month."* We regret that physical indisposition rendered our attendance at either of the three last meetings impossible.

In the formation of this society the architects of the coast have placed themselves in a position before their respective clients and the public subject to criticism. If the affairs of the organization shall be prudently and wisely managed, and its outgrowths and enunciations be so permeated with intelligence and good judgment, as to merit appreciation and respect from all observant sources, its members may reasonably anticipate professional and personal benefits, and a strengthening of public and individual confidence in the members of the profession upon this coast.

As a profession, we have drifted about for many years upon the sea of individualism, without any of the advantages accruing from organized, fraternal harmonies and kindly interchanges of views and opinions upon material and often-disputed points and issues. And this fact should be preeminent in the mind of every affiliate in the new organization: that a discerning public will observe and scan our actions as a society, and judge of our intelligence as men, and qualifications as architects by our organization developments.

We pray not to be understood as anticipating a lack of ability, willingness, or determination on the part of members to delineate and maintain all the necessary qualifications to an influential and successful career; but simply to direct the minds of one and all to the high position assumed by those who have consummated this organization, and placed themselves conspicuously—not only before the people of this coast, but to a certain extent, before their professional brethren in other parts of our own and other countries. For whether an enviable success or deplorable failure attend the organization, the facts of the case will be heard of through this and other journals, and the reputation of the architects of San Francisco will go abroad with honor or dishonor to themselves, as the case may be. But our personal knowledge of the abilities and qualifications of many of those who have joined in this good work forbids a doubt as to the results destined to flow from the movement under notice; and we feel confident that after the hand that wields this pen shall write no more, the architects of this coast will continue their society organization, and make it a permanent success, with increased and enlarged influence for generations to come.

"Business Boom—Proof that it has at Last Got to San Francisco."

So said the San Francisco *Chronicle* in its issue of May 1st, and in proof of the statement gave the result of reportorial interviews with twenty-two retail establishments, some importing portions of their stock, and all of whom gave favorable accounts of increased and increasing trade. We are pleased to learn that the "boom has at last got to San Francisco," and hope that it will diffuse itself into the building business; which, although greatly improved upon the years covered by the withering and blasting Kearney & Co. devastations upon the interests of this city and State, are as yet but moderate in extent in this city, as will be seen by our "Building Intelligence" report, elsewhere appearing in this journal. While it would be a great pleasure to us to record a long list of building improvements each month, we cannot, as has been done by the daily journals of this city, override the actual facts, and represent building activities as "exceedingly lively," when but a very moderate condition of things exists. We have no objections to the daily press telling their readers "big stories" about building improvements, if they desire to do so; but our readers may depend upon this as a fact, that the monthly "Building Intelligence" report of this journal gives a very nearly complete record of all the buildings commenced within each month. We may occasionally miss a few, but they are noticed the following month, so that our report for the entire year will be found practically complete. The *Evening Post* of May 7th fills two-thirds of a page of similar character. Both journals named are in the main, if not entirely correct in their statements, as far as the general trade of the city is concerned.

There is a vast improvement in all classes of business, and the outlook is certainly encouraging, and this must necessarily lead to a stir in real estate improvements. For with trade and commerce lively, business healthfulness must follow; and with this realized, demand for additional stores, tenements, and homesteads becomes a certainty.

The general prosperity of this city and State has never been better, and while limitness surrounds building operations in San Francisco, in the interior they are active. The large shipments of building materials from San Francisco, and the reports from all sections, sufficiently confirm the fact that great prosperity abounds throughout the Golden State. It is also certain that a considerable number of fine residences will be commenced in San Francisco this year, some being in the market for bids, and the plans for others in progress of preparation.

A Wonderful Wood.

We have in this State a wonderful wood known as "mountain mahogany." The trees do not grow large. A tree with a trunk a foot in diameter is much above the average. When dry, the wood is about as hard as boxwood, and being of a very fine grain, might, no doubt, be used for the same purposes. It is of a rich red color, and very heavy. When well seasoned, it would be a fine material for the wood carver. In the early days it was used in making boxes for shafting, and in a few instances for shoes and dies in a quartz battery. Used as a fuel it creates intense heat. It burns with a blaze as long as ordinary wood would last, and is then found, (almost unchanged in form) converted to a charcoal that lasts about twice as long as ordinary wood. For fuel it sells much higher than any kind of wood; indeed, a cord of it always brings the same price as a ton of coal. The only objection to it as fuel is, that it creates such intense heat as to burn out stoves more rapidly than any kind of coal, however bad.—*Virginia City Enterprise.*

Read Our Building Intelligence Report.

It presents a pleasing showing, as compared with our last month's statement, and largely so over May of last year, both in the number and expensiveness of buildings.

Manufactories upon the Pacific Coast.

Too frequent intelligent reference cannot be made to the matter of manufactories upon this coast. In the early days of California, her gold mines were the chief, and almost exclusive interest, and so continued for a considerable period of time, until her wide-spread acreage of virgin soil demonstrated that untold millions of wealth awaited the labors of earnest husbandmen, in localities where gold did not exist. Then in their order, appeared the vineyard and fruit interests, each adding their tributes as auxiliaries to the vast natural resources of the Golden State; and the silver developments of adjacent states and territories added their influence in demands upon the mechanical industries—particularly in San Francisco—and the circulation of millions of dollars among its working classes and manufactories. And as the outgrowth of all this, numerous manufacturing enterprises have been established in this city and various parts of the State, ranging from almost numberless "small affairs" up to many prosperous, permanent, and "paying well" establishments.

The following statements are fully sustained by existing facts: That this State enjoys large natural advantages in climate, in resources in nearly all kinds of crude material, and in geographical position; that all wisely conceived and judiciously managed manufacturing ventures, so far attempted upon this coast, for the production of, and producing articles of practical use and value, have proved successes to a greater or less extent, and many of them handsomely so; that there are *no* difficulties in the way of establishing extensive manufacturing enterprises of various characters, which may not be overcome or equalized by intelligent and determined men, backed up by the necessary means; that there is a vast and inviting field of operation and commerce, and innumerable reasons why the wealthy men and capitalists, and the sterling business men of this city and coast should embark in manufacturing enterprises, which to-day are above all things most necessary to the general prosperity of the State.

We will repeat but one single illustration of what may be done, when the right men combine in the doing. During the earlier history of California—up to 1860, or later—doors made of "California sugar-pine" were but lightly esteemed, and their use confined to the cheaper class of houses. Even in buildings of but moderate pretensions, architects generally specified, and owners required, "*Eastern pine doors*," and the market was well supplied with the eastern manufactured article. The manufacturers of sugar-pine doors met with but little encouragement, and neither architects or owners could be induced by any system of argument to accept the home production as good and sufficient. Finally some of the large dealers in doors became interested in the manufacture of "sugar-pine lumber," and being satisfied that the native lumber was equal to the imported, except only in the fact that it contained more resinous matter—which could be overcome—they resolved to clear the market of "Eastern doors" by diminishing importations, until it was difficult to find any of the Eastern made in San Francisco; and in a short period of time opposition to sugar-pine doors passed away—and today, in all classes of houses, except where those made of "hard woods" are used, sugar-pine doors are accepted with universal satisfaction. In this way, a few resolute men resolved upon and effected the establishment of a great manufacturing interest, which has resulted in individual wealth to themselves, and retained within our own borders as a State, millions of dollars, which otherwise would have floated into the purses of those who first supplied this market with doors, to say nothing of the tens of thousands of doors exported through the Golden Gate and into neighboring states and territories. This is but one of many illustrations that might be recited; and if there were in San Francisco a sufficient number of determined and enterprising men who would "go and do likewise" in other connections and lines of manufacture, it would require but a few years to perfect the establishment of numerous manufactories, which would supply not only the wants and requirements of this coast, but add largely to our population, and stimulate our shipping interests in the carrying of large exports to other countries.

Several columns have appeared during the last month, in the *Evening Bulletin* and *Morning Call*, stating that numerous movements are on foot and in contemplation, looking to the establishment of cotton mills, and manufactories of various kinds, within the bounds of the State of California. We hope that the information conveyed in the statements may prove correct, and that a considerable number, if not all, the interests mentioned may be perfected. If all, and at an early day, then certainly there will be a "boom" in business, as every such enterprise must and will require the labor of carpenters, masons, machinists, laborers, and operatives in all the lines of mechanism involved.

The inducements justifying cotton-mill ventures are many. Portions of California, and some of its adjacencies, are destined to become cotton-producing districts, and with a home demand for the raw material, it will not be long before the industry of cotton planting will result in such successful attempts in producing good, if not superior, grades of cotton, as shall stimulate its extensive culture. It is a fact in connection with the people of this western coast, that when necessities arise and become apparent, there is always found some one equal to the emergency—particularly when fair, if not large, profits attach. It was a prevailing opinion, up to as late as 1854, that there was no clay within the bounds of California suitable for the manufacture of bricks; but the fact has since been demonstrated that thousands of millions have been produced from California clay, the majority of which have compared favorably with the best bricks made in the United States. And in the early times the doubt was freely expressed, that this State "never would become a grain-growing and agricultural State"; yet its fields have yearly yielded their millions of bushels of grain, and the products of its vines and fruit trees enjoy an enviable reputation throughout the civilized world.

The great drawback experienced in this city has been the withholding of capital by "our wealthy men." With the exception of the lamented Ralston, and some few of similarly large mind and heart, the vaults of the rich have been to too great an extent sealed against the risking of their wealth in enterprises not fully demonstrated. Solicitations for financial assistance are generally met with refusals, unless the proposed thing shall have passed the ordeal of actual demonstration—to effect which, the means solicited have been a necessity. Many "good things" have been "shelved" for want of means to demonstrate and perfect. Men who have accumulated large fortunes have a right to their enjoyment and application; but a liberal circulation in proper channels may help thousands, without injury to the party circulating.

But if, as stated by the journals mentioned, Eastern capitalists are directing their attention to California, and surveying the probabilities and possibilities of the situation, it is altogether likely that new interests will be established, and results follow, alike advantageous and profitable to the parties themselves, and beneficial to the common interests of the entire State.

We see no reason why white labor should not be secured at as low rates in California as in almost any other part of the United States. Flour, and the common necessaries of life—particularly when purchased in considerable quantities—can be obtained as cheaply as in any other city in the Union, and the working classes can supply their wants for as small a sum as is possible elsewhere. Perhaps house rent is the only thing that averages higher in California than in the Eastern States. But with the establishment of manufactories, tenements for the operatives can also be provided at comparatively small cost, and such arrangements carried out as will secure labor at satisfactory rates.

A California Railroad Invention.

We direct the attention of our readers to an article in this issue, entitled the "Traveler's Safeguard." The description by the inventor, Mr. J. Denechaud, Sr., is explicit and furnishes full explanation of the details and minutiæ of the operation. The merits, feasibilities, and utilities of the invention we hope to see thoroughly discussed by our railroad engineers, and we will take pleasure in presenting their different views to the public. The first thing that would be noticed by examining the models, is the extra size and weight of the *new rail*, as proposed by the inventor. He claims, however, that he can make the rail, according to his design, and have it weigh just the same to the foot as the old style. In case of a wheel breaking, the inventor claims that the *guard* will support the car till the train can be stopped. We will notice the invention at greater length in our next issue, and hope in the meanwhile our railroad engineers will not be backward in giving us their opinions on the merits of the invention. We will only add that if there is the practical merit in it claimed by the inventor, we hope that our California railroad managers will be the first to make the practical test.

Infernal Machines—Plank Sidewalks.

We are aware of the special meanings and applications of the term infernal, but use it as we do in this case—*feelingly* and intelligently. When no other material than Oregon pine planks could be found for sidewalk purposes, necessity compelled submission to their use in California; but their discontinuance should long since have been enforced by municipal regulations, for many reasons: First, they are not durable; second, they are not healthful, retaining dampness in and under them, intermixed with decaying animal and vegetable matter, to be evaporated into the common atmosphere by the sun's rays, to the detriment of human health; third, they are sin-and-profanity-producing agencies, having caused more swearing by men and boys, and naughty words by the gentler sex, than any other one "miserable thing" in common use. In illustration, we will make a little calculation, as follows: The size of "city blocks," north of Market street, is 275x412½ feet, and south of Market, 550x825 feet, making a fair approximate girth of about 2,000 feet, by an average width of 16 feet, or about 64,000 feet of 2-inch plank to each block. Up to 1860, say there were 1,000 blocks surrounded by wooden sidewalks, and a greater number since, consuming fully the quantity of lumber above stated to each block, making the total sidewalk plank in use at that date 64,000,000 feet. Imagine that amount of planking nailed with an average of 12 spikes to each lineal foot, or a total of 24,000,000 spikes. Of these, imagine that one-in each 100 of the number stated—a reasonable proportion—to have become loosened by the decaying of the sleepers and other causes, and their protrusion above the surfaces of the planking from one-half inch to two inches. With this as a *positive fact*, then imagine the long trails of one in each twenty ladies' dresses each day hooking on these spikes, and by the impetus of the walking motion ripping dresses, skirts, furbelows, etc.; the ripping and tearing sometimes extending to the waist, and not unfrequently dragging skirts from their fastenings, and we reach one of the items of provocations arising from plank sidewalks. To this there is to be added numerous "trip-ups," prostrating female forms full length on the sidewalks, stumped toes, corn concussions, torn shoes, etc., and we have the general average of trials endured by the ladies; enough, if imposed upon the sterner sex, to bring forth whole volumes of profanity. Then with 24,000,000 spikes sticking up in all directions, imagine the proportion of the hurrying throng of men stumping their toes, tripping up, and frequently falling prostrate by contact with a "cursed sidewalk spike," or a ridge of from one to six inches high, caused by the plank swelling up; and if there is anything that will draw out the real inwardness of a man's nature, and test his temper fully, it is to trip up and fall in the public streets, particularly so when his hat leaves his head and sails up or down the street before a minature gale—a San Francisco westerly wind. We have heard men, while chasing their renegade head-coverings, express their sentiments most freely, and generally in language not remarkable for its polish and refinement. As a police regulation, plank sidewalks have sometimes been useful in tripping up culprits in their attempts to escape; but, at other times, the rogue has secured the advantage by the fall of the policeman. On one occasion we saw a runaway horse checked and thrown by the reins catching on one of the sidewalk spikes.

The reasonable probabilities are that, for many years, particularly when long-trail dresses were fashionable, it cost the ladies of this city all of $20,000 annually to repair damages to their wardrobes from this one cause, and the good effect of thousands of "excellent sermons" have been lost on the same account. We have seen clusters of irreverent men stand "to see the women trip and tear their dresses," on their way homeward from church, and many a well-intended admonition inspired by the services of the hour has been cut short by a single sidewalk spike.

But the more dangerous feature to life and limb is that of the plank swelling and raising in ridges. Perhaps fully 10,000 persons have stumbled and fell annually, with more or less physical injury, over these sidewalk stumbling blocks which bulge up every season; and at times the sidewalks of San Francisco have been in a most wretched and dangerous condition in hundreds of places.

OUR PERSONAL EXPERIENCE.

On the 16th of April last we left home full of anticipations for the day. Within three minutes after leaving our home, in passing the property owned by Mr. J. D. Spreckles, on Capp, Twenty-first and Howard streets, we encountered one of those *swelled up neck-breakers*, and by a misstep was thrown violently prostrate, with the following result, viz: Best pantaloons torn across the knee six inches, under pants ditto, the skin and flesh torn off more than the size of a trade-dollar, the knee-cap driven three inches above its natural seat, and the tendons and muscles badly strained, ruptured, and lacerated, followed by excruciating pains and sufferings, with the certainty of a damaged limb for life; for a knee-joint so badly injured and strained never again recovers its former soundness and strength, particularly in one who has passed his sixtieth year.

The total cost of laying stone sidewalks around the entire block would not be a sufficient remuneration for so severe an injury, which might have been prevented by fifteen minutes' work in placing the two planks causing the accident in their proper position.

Labor "Strikes."

They are reported as occurring in various parts of the United States and Europe, from various causes, and of different characters. In California there has been nothing during the past five years to warrant or sustain movements of this kind. Still, the unwise spirits which more generally influence men to such a course, exists among certain classes. Notwithstanding the very moderate condition of things in building activities at the present time in San Francisco, there are men foolish enough to assume the role of "strikers."

Just after our April number had gone to press we noticed some ten or twelve men sitting on piles of lumber in front of a row of buildings then ready for lathing, and piles of laths lying around, awaiting use. In answer to inquiries, we were informed that "the lathers wanted an increase in pay for lathing"; this, in the face of the fact that business was and is dull, without a single argument to sustain a "strike" upon any of the usual grounds assumed in such cases—of the demand for labor being greater than the supply, or an attempt by any one to reduce existing or former rates. In this, and all cases of similar character, a decidedly ridiculous and absurd feature becomes prominent—an absence of ordinary intelligence; for whether the lathing in question was executed at a low or high figure of compensation, the reasonable probabilities were that when the work was done an "idle spell" would follow, and the rates offered could have no effect upon the month's or year's earnings of the strikers, as far as the days employed are concerned.

To their discredit we state, from personal knowledge, that lathers in San Francisco, more than any other class of working-men, are inclined to organize petty strikes. In hundreds of cases plasterers have contracted for jobs, basing their estimates upon the then hitherto ruling rates for lathing, which, in many instances, have been considerably above the "lowest prices," only to find themselves confronted, when "the buildings have been ready for lathing," by a demand for greater pay for the lathing-work, and consequent loss or no profit to themselves.

This department of house-building is regulated only by the "get all you can" rule, with absolute uncertainty for a single day as to prices, when the slightest pretext arises for an upward move.

The most provoking and detestable feature in connection with "strikes" exists in the character of the parties who incite them. It seldom happens that reliable, steady, trustworthy, and intelligent employés lead in such movements. Such men find better success in the more rational method of meeting their employers upon conservative grounds, and obtaining redresses, advances, and reliefs through the channels of argument and sound reasoning. True, in some cases, even the better class of operatives may be forced to assume the defensive by refusing to comply with, or submit to oppressive rates, rules, and regulations; but as a rule, prevailing in a large majority of cases, strikes are brought about by one of two classes of men: the shiftless, indolent, and really worthless kind, who despise labor in every shape, with never-ceasing desires to reach a condition of life which they are unwilling to attain by the exercise of the natural possibilities within the circle of surrounding circumstances. In our personal and professional experiences, we have noticed men playing the part of mechanics and workmen, whose every movement has been badger-like and provoking—natural idlers and shirkers—each stroke of the implement of labor being applied with a sluggishness clearly indicative of innate and natural laziness. Such men are generally talky, visionary, effervescent in sentiment, and full of conceived great projects, the merits of which they seek to enforce with a professed earnestness which would do credit to a really honest legislator, or an absolutely pious preacher. These characteristics well qualify them to assume the role of demagogues, and to practice intrigues and delusions upon others naturally more honest, but not mentally fortified against the designing acts of those who devise schemes professedly in the interest of labor, political reform, etc.; but the soul and secret of which is to relieve themselves from the common daily duties and obligations of life—to earn bread by the sweat of their brow.

A few of this knavish kind, distributed through a company of working people, never fail to create discontents, and stimulate unwise and irrational views and opinions, entirely in conflict with right and reasonable business principles and economies. And it is in this, and by this class of beings, that the greater number of such movements are created and prosecuted.

The history of strikes fully demonstrates the fact that the sorrows, privations and loss of life, growing out of them, and the impoverishment and miseries resulting from them, outweigh the benefits secured in isolated cases one hundred to one.

"Thoroughly Sewered" Cities not always the Most Healthful.

ARTICLE NO. I.

Strange as it may appear to those who have not made sewers and sewerages a matter of study, so as to comprehend and understand the many details and involvements in connection with them, it is nevertheless a fact, that in cities and towns "sewered in all directions," the average mortalities are often greater than in places where there are but few or no underground sewers. With this as a fact, a seemingly strong argument presents itself against street sewers, which abstractly considered, is well sustained; for the ostensible objects and purposes of sewerages are to preserve and protect the health of communities and remove the dangers incident to decaying matter and fluids "deposited upon the surface of the soil or in cesspools; and if sewers fail to accomplish this, and do not afford the reliefs proposed in their construction, by improving sanitary conditions, then their utility must be questioned; and if greater mortality exists in *well-sewered cities* than in those where surface resources for the deposit of discarded matter and liquids are adhered to, the question naturally arises, are not sewers a failure in a sanitary point of view? If after all proper care and mechanical and engineering skill has been exercised in their construction, health and life destroying results ensue, the decision must be adverse to their use; provided such results are clearly attributable to the sewers, and not to connections, agencies, and appliances which tap but form no part of the underground conduits. But if such results are from sources or causes outside of the sewers themselves, then these, and not the sewers, become defendants in the issue. For although each sewer laid, contained millions of feet of the most deadly gases imaginable, they could do no harm, *so long as confined within the shells or walls of the sewer*. It is not because gases by natural processes form in sewers, that people die from their effect, but because escapes are provided by which such gases are liberated, and permitted to distribute themselves in the atmosphere breathed by human beings. The most vicious dog if securely chained—the most savage beast, if confined in an unbreakable cage, and the infuriated bull if safely restrained by strong ropes, are rendered helpless and harmless, so long as their restraint and confinements continue secure. But these removed, and the destruction of human life to each or either is a plaything and pleasure. And so with sewergases and all other life-destroying agencies; so long as they are prevented from entering the human system in any form, either atmospheric gaseous, fluid or solid, their deadliness must remain harmless.

It is not because deadly agencies exist, nor because they are sometimes handled, and to greater or lesser extent connected or associated in common affairs of life that evils flow; but because such agencies are injudiciously and unwisely handled, and so used as to permit them to inflict their injurious effects.

We wish it were in our power to enforce upon the minds of our readers, the materiality of the views expressed in this connection. But it is difficult to reach "public sentiment," even with the most startling statement of fact, involving the lives of every man, woman, and child in the community. Earthquakes, thunder, lightning, fire, and storms stir up the fears and tremblings of people generally, because they are fierce, noisy, and quick in their actions; not so the quiet, secret, and slow agencies which are every moment of time working their destructiveness and yearly sending to untimely graves hundreds of thousands of the human family—more in number by a hundred fold, than all the earthquakes, fires, storms, and shipwrecks that occur within an equal period of time.

There is by far, a too-limited intelligent general understanding of sewer matters. They are looked upon simply as underground channels for the carrying off of waste fluids and matter, while the more essential characteristics are overlooked. The fact that they are chambers and conduits in and through which death distills and circulates some of its most effectual agencies, enters the minds of but very few persons. Still this indifference on the part of the living does not abate nor neutralize the actions provided by natural laws, which tire not day nor night, but are ever and always at work, wherever places exist favorable to their operations.

Sewers, as before stated, are constructed for the purpose of *carrying off* discarded matter and fluid, much of which is animal and vegetable, and large proportions of which find lodgment at the bottoms and on the sides of the sewers, there passing rapidly to decay, and the formation of vapors antagonistic to all life, especially in mankind; consequently they become generators, reservoirs, and conduits of aeriform fluids, which should no more be trifled with than the most dangerous explosives known in chemistry or manufacturing operations.

Readers, it is a simple matter to tap a street sewer for the connection of a side sewer, but remember that this simple operation opens an avenue for the introduction of a terrible enemy into your household; and unless you *maintain firm mastery over it*, will play upon and perhaps destroy your own, or the lives of your loved ones.

(TO BE CONTINUED.)

Mean People.

THOSE WHO READ PAPERS, BUT NEVER SUBSCRIBE TO THEIR SUPPORT.

THERE is a class of people who are absolutely mean. Honest they claim to be, and may be in a general sense, but it is little less than dishonesty on the part of those who are able to pay for journals to borrow them from others to obtain their contents, or in other ways to gain possession of them, for the purpose of extracting the information and instruction contained in their columns. Every line of a printed journal costs its author money, and no one enjoys the right to appropriate to his own use and benefit that for which he pays nothing. We daily meet persons who have something to say in praise of this journal and its contents, and tell how eagerly they peruse its pages, but whose names are not upon our subscription list. This is a shame, and we suggest to such the absolutely unfair and dishonorable course they are pursuing. If it contains instructive and interesting matter—a fact which we have never heard questioned—then every man who reads it should subscribe to its support. And if all *free readers* will send in their subscriptions, we will soon be able to increase its interest in all departments. **Let all Subscribe at once.**

Pacific Coast Industries.

Although canning and fruit, meat, fish, etc. preserving establishments cannot properly be denominated as "mechanical industries," still they are so closely allied thereto that a recognition of them in this connection cannot be rejected. If not strictly mechanical in themselves as a whole, they are one of the great feeders which assist in sustaining mechanical operations in many connections. A can of preserved fruit is but an insignificant affair; yet its production, in the establishments where prepared, entails the use of steam-boilers, steam-engines more or less powerful, and intricate machinery—kettles, pipes, elevators—a line of tin-workers' tools and implements, and numerous other appliances. Besides these material necessities, thousands of busy hands—male and female—are employed in paring, hulling, cleaning, and preparing the raw materials for the various processes through which they are required to pass. Then comes the more skillful labors of those who conduct the various manipulations of stewing, sweetening, curing, and seasoning the several classes of things preserved. While all this is going on, a corps of busy tinsmiths are cutting up sheets of tin, melting bars of solder, and making cans for the reception of the prepared delicacies; and after the cans are filled, they are passed into the hands of the "sealers," who close them permanently against the action of the atmosphere. Meantime, the artist has prepared the various designs, and the printing-press has been busy producing the more or less beautiful designs of labels adopted by the respective establishments. To all this there is to be added the pasting on of labels, assorting, arranging, boxing, and packing the several kinds. So that a single can of preserved fruit prepared for market, requires machinists to make, set up, and keep the machinery in order; engineers to run the machinery; men and women to prepare the fruits, etc.; others to cook, stew, season, etc.; sheet-tin manufacturers to furnish the tin, and tinsmiths to make the cans; and a line of operatives to paste labels, box-makers to make boxes, glass-houses to furnish the glass receivers for certain kinds of pickled and preserved things, men to assort and pack, porters to handle, and teamsters and horses to transport; to say nothing about clerks, accountants, and numerous other details, all proportionally involved in the production of a single can of fruit.

Besides all this, the erection of buildings for the purposes of carrying on operations, by which employment is given to masons, carpenters, plasterers, painters, iron-workers, roofers, etc.; and dealers in the various lines of building materials come in for their share of the common benefits derived from canning establishments.

In this connection we cannot refrain from referring to the elegant building, now in course of completion, by Sol. Wangenheim & Co., on the corner of Davis and Sacramento streets. It covers the entire lot—91 ft. 8 in. on Davis street, by a full depth of 117 ft.—with cellar, area under sidewalk, and four stories above sidewalk. The accompanying cut sufficiently illustrates the general character of the edifice.

Having enjoyed every facility and opportunity to see and know for ourselves, we unhesitatingly state that the operations of the establishment named are conducted in an admirable manner, cleanliness and care in every department being conspicously manifest; and, when the new building is entirely completed, it will equal if not surpass any other upon the Pacific Coast in all the essentials of a complete manufacturing establishment.

The business of preserving fruit in California has already become an important industry, and the world-wide reputation gained for this commodity assures still greater results in the future. While the "home trade" and that of the adjacent States and Territories is large and well established, a market for California preserved fruits is found east of the Rocky Mountains, in Europe, China, Japan, Australia, and all countries having commercial intercourse with San Francisco. Still, while this and kindred industries stimulate fruit and other culture, and give employment to thousands of men and women, a reckless multiplication of their number must be attended with injurious effects in the creation of unhealthful competition. "Overdoing" things has resulted in the crippling, and sometimes the ruin of enterprises which might otherwise have continued and prospered. Business rivalries, stimulated by over-production—supplies greater than demands—are always productive of evil; and in this connection, would work great injury, as the farmer and fruit-raiser, at present but indifferently remunerated for the products of garden, field, and orchard, would be compelled to sell at "ruinously low prices," or permit them to fall and rot upon the ground, on account of the prices obtainable not being sufficient to pay for picking, packing and shipping. And during periods of great competition, tribute is enforced upon the working classes engaged in the respective operations, and their wages, often no more than sufficient to "keep soul and body together," are reduced to help sustain unwise and demoralizing warfare in trade and commerce. It is far more desirable that all business and manufacturing operations should continue in legitimate channels and upon fairly remunerative bases, allowing all parties concerned to reap a right and just return for their respective participation.

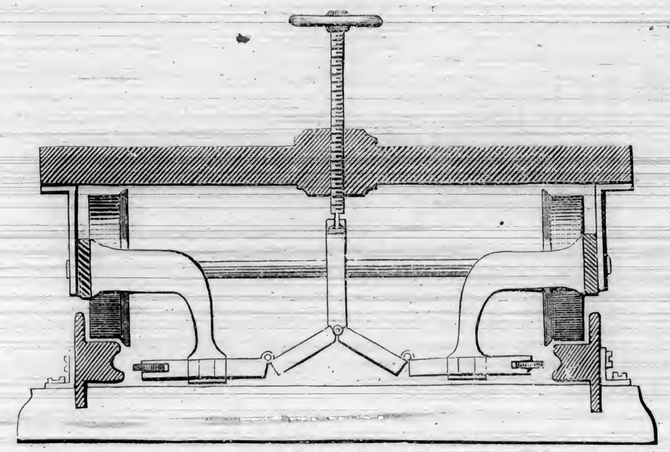
House Property in America.

At the present season there will be the customary amount of grumbling on the receipt of the application from the collectors for the tax on rent, inhabited house duty, and other "queen's taxes," especially as there is an intimation that prompt payment is desirable because the Government is short of money. But on the whole it is the amount levied, rather than the manner of assessment, which is the cause of discontent in England. In the United States, on the contrary, there is some kind of a sliding scale in use, through which the humbler class of holders of property would appear to be subjected to what must be deemed to be injustice. The following simple account of a poor man's grievances manifests a state of things which is incomprehensible to an Englishman: "I had $2,000 in gold left me by legacy many years ago. Before the war I lent it; it was repaid to me in paper, in virtue of the legal tender acts and decisions. In 1870, full of the idea so enthusiastically preached, that it was to the immense advantage of a working-man to own his own house, I bought one which had been built several years. The price was $4,500. I paid $1,500 down and gave a mortgage for $3,000 more, spending considerable in improvements. It was assessed at $3,600, and the taxes were $12 on $1,000. The interest on the mortgage was 7½ per cent., the mortgagees being taxed for it, and charging me 2½ per cent. extra to make up for the tax, which therefore came out of me instead of them. Last year the assessment had been raised to $5,000, and the taxes were $18.50 per $1,000, making $92.50 of direct tax. I paid $225 for interest, of which $75 was due the mortgage tax; $7.50 per year insurance, and allowing 1½ per cent. for repairs, or $75 more, I was paying $400 a year for a house that was dear at $300. I had just $1,500 of my own; paid taxes on $8,000. I could not endure it, and turned the whole property over to the mortgagees, sacrificing all I had put in; so that the financial legislation of the State and Nation and *municipal extravagance* had robbed me of all the money I had in the world. I immediately rented the house of the mortgagees at $200 per year, half of what I had been paying, and they will only have to pay taxes on $5,000, while so long as I had it I paid on $8,000. *I* was taxed on the money I invested in the property, on the money I borrowed to make up the residuary value of the property, and on that same value over again; while as soon as the men I borrowed the money from took it away from me, the latter amount was not taxed at all. The simple act of transferring the title to another party seems to have reduced its value $3,000, and *I* can't see any reason for it. There is just as much of it as ever, and it is capable of furnishing just as much revenue; yet it has to pay but little more than half so much. What equity is there in taxing a man not only on all the property he uses, but on all the money he has to borrow to retain the use of it? If I had not put in ANY money, and mortgaged it for the whole value, I should have been taxed on $10,000. So it seems the value of property rises in inverse proportion to the amount of ready money the man has that buys it; and the rich man who pays cash is only taxed half as much as the poor man who has none. If this is not legislating for the rich against the poor, what is it? In plain words, I had to pay $75 a year as a penalty for the crime of having only $2,000, instead of $5,000."

The above extract is an Englishman's opinion, as expressed in the "*London Architect.*"

How to test Drain Pipes.

Take soiled cotton waste and sulphur, ignite it, and blow the smoke into the drain or pipes. If leakage exists in the latter inside of the house, the smoke and smell issue forth, and show that something is wrong, and generally tell also just where the fault or faults are. Sulphur, as well known, is one of the best of disinfectants, and a dose of the fumes from this to the drains, after disease has been in a house, will effect much good.



Travelers' Safeguard.

I have projected to render almost impossible the derailment of steam cars and their disastrous consequences. To this end I have invented a new rail, together with a little apparatus, simple but very strong, which is placed between the wheels of both the fore and hind trucks of either freight or passenger cars, and on the cowcatcher of the locomotive. At the extremity of the arms of the apparatus, is placed a disk, which glides in a groove dividing my rail, thus giving it double function, and forming a new combination to which I have given the name of "*Travelers' Safeguard.*"

I hope my system will be well understood from the drawing, which shows my rail at its end, with the apparatus in place. The rail from its peculiar shape is much firmer than the ordinary one, and its preservative and lateral flange extending its entire length would suffice of itself, in most cases, to prevent derailment. From the fact of my rail being laid on this lateral flange, which is imbedded its entire depth in the wooden cross ties, it is not as liable to break as the ordinary ones, either from wear and tear of service, or constant exposure to the weather. As the combined systems work together, the arms of the safeguard glide along the groove in the rail, the trains are so strongly bound and adhere so strongly to the track, that nothing in the world could compel the wheels to leave the track; not even the breaking of a wheel, the breaking of the axle, or of the rail itself, if that were possible. A train with my system in use cannot be derailed, because the protective flange of the rail and the arms of the safeguard will always maintain the equilibrium of the train until it is brought to a stop. This power of resistance does not in the least impede the movement of the train, there being not the slightest friction in the groove while the train moves straight along. Friction takes place when there is a movement which might send the wheel from its place; but this does not even jar or shake the train, the disk on the opposite side touches the bed of the groove and gliding along compels the train to resume its proper place, in a manner that the passengers in the cars have not had any intimation that there had been a danger of derailment, as not the slightest shock was produced.

I will endeavor to set before you, as concisely as possible, some of the advantages claimed for my Safety System. My rail is a double T or flange, and when worn out on one side may be reversed, its form and great solidity rendering it available for double and even quadruple service. While the rail at present in use being but a single T rail and presenting a surface of about two inches in width, on which roll the wheels, whose rims are at least four and a half inches wide, it is evident the rims, overspreading the rail more than half their width, must, in a comparatively short time, render the rail entirely unfit for use, especially if we take into consideration the deviation which the wheel is obliged to make in response to the movement of the axis of articulation of the trucks when turning curves.

With my safety system, on the contrary, the rim of the wheel in revolving rests its entire surface on the T or flange of the rail, which is proportioned to the width of the wheel (this width could, if desirable, be reduced to three inches, without in the least lessening its strength or impairing its use.) It follows, accordingly, that with my system each T or flange can readily perform the service of two of the ordinary rails; and being a double T or flange, it naturally follows will perform the service of four of the rails at present in use, and even the wheels will last a much longer time.

My rail affords every desirable guaranty of solidity of the road-bed, being imbedded to the full hight of its lateral aisle; and kept in place by a simple clasp on each one of its cross-ties, it gives to the road-bed a power of resistance heretofore unknown, and henceforth we can dispense with all the iron couplings, with their bolts and screws now useless.

As a matter of economy in the laying of the road, it is susceptible of proof that my rail can be laid with less than one-half of the intermedial cross-ties now used, and still possess much greater solidity.

Let us take, for example, the track between San Francisco and New York, which is, I believe, three thousand two hundred and ninety-six miles, according to official figures, and we reckon there are six million one hundred and twenty-six thousand three hundred and seventy-five intermedial cross-ties, an average of one thousand eight hundred and fifty-nine per mile. My new rail can be laid, with every guarantee of solidity to the road, with eight hundred and eighty cross-ties per mile, giving a total of cross-ties between New York and San Francisco of two million nine hundred thousand four hundred and eighty-five, a saving of three million two hundred and twenty-five thousand eight hundred and ninety-five cross-ties. I would add that with my system the cross-ties will last much longer than is possible with the present mode of laying, because of the great injury they sustain from the enormous spikes now driven into them to secure the rail, and which must be withdrawn whenever necessary to change a rail. With the new system we economize not only the cross-ties, but as well a great amount of labor.

Far from me the idea that railroad companies should adopt my invention without thorough investigation. On the contrary, I will be most happy at all times to present myself before competent gentlemen who would honor me with questions and an opportunity to answer them.

In this connection I have frequently asked myself—what objections might be made? And after much reflection, two main ones presented themselves to my mind. The first is—Is it then necessary that all rails at present in use should be replaced by your new rails? This would be too expensive—in fact, impossible—as it would interrupt travel, etc. To this I answer—No; it is by no means necessary to replace all the rails; the exchange need only be made in the dangerous places, such as curves and deep declivities; and for the others it may be effected gradually, as change of rail is daily necessary, this being entirely practicable, as the surface of my rail is exactly of the same hight as the rails now in use.

The second objection is—"You say your rail is stronger than the old one; being larger, it must be heavier." To this I answer—Yes; that is quite natural, but what matter if it be heavier, when it can perform four times the service of the present rail. My rail is easily laminated, and, as before stated, less liable to break—firstly, because of its natural strength; secondly, because of its shape; and the discontinuity of its profile suffices to prevent its breaking. The manipulation will not cost more than for the old rail, and the freight will not exceed the freight on two ordinary rails. Nevertheless, should my rail cost a little more than the old one, that is more than compensated for by its length of service and its greater safety, which greatly increase its intrinsic value. I then hope that in consideration of this, and the uniform strength that they are to give to railroad tracks, of which they are so much in need, and of all the other advantages that they are to give, that it will be preferred to the old rail.

By the solidity of my new rail, the spreading of the bed is prevented. The wheels revolving on the entire surface of the rail, the cars move without noise and seem to glide without movement, as a light skiff on a sea of oil; so that hereafter no more derailments, and no more jolts and shakes, so disagreeable to the passengers and so damaging to the rolling stock, will occur—the which damages are frequently the cause of disasters, and which bring consequently the breakage of wheels, axles, and of rails themselves, and this so frequently of late. It is useless to add that each of these breakages bring about a derailment in a short time as its consequence.

Heretofore I had thought of intrusting to the engineer or fireman the operating of the safeguard, or to the brakemen; but with a slight modification it may be operated with steam or compressed air, which now controls the brakes, principally that which I here describe, and which I have specially worked out for that purpose, and capable of being lifted with facile movement above the track when necessary, as for example to pass level crossing, or in shifting cars on depot tracks or sidings.

My invention may be summed up as follows: Great improvement in the track, with large saving to railroad companies, besides affording to passengers confidence and tranquillity—and, above all, a guarantee of safety to their lives.

With confidence in my invention, I hope the gentlemen to whom I have the honor of submitting it will appreciate its merits, give it their consideration, and a place among useful inventions.

Working models of my invention can be seen at my residence, 108 Eighth Street.

Very respectfully,

J.·. DENECHAUD, Sr., C.·.R.·. †.·.,

Office, N. W. cor. Washington and Kearny Streets.

SAN FRANCISCO, December 17th, 1880.

CELLULOID IN A NEW ROLE.—It is reported that celluloid has of late been successfully applied in the form of a veneer in the ornamentation of furniture. It is used in this way in imitation of malachite, or colored marbles, for table tops, and for panels in imitating tortoise-shell and other costly materials.

THE globular form of the earth was first suggested by Thales, of Miletus, about 610, B. C.

PIONEER WHITE LEAD WORKS.

What is required to institute and carry to a success a manufacturing enterprise? Nature is generous with her gifts; but she forces man to the exercise of his endowments, to develop them, and give the substance a form for his appreciation and enjoyment.

The very many natural resources of this Coast are marvelous, and they impress all thinking visitors with the conviction of a great future. With but few exceptions, these wondrous gifts of Nature are at present but mere curiosities, and are spoken of and written of only as such—with prosy theories on their practical value if utilized.

To the business man, scientist, or to the practical thinker who comes amongst us, it is a matter of surprise that our people, with their wealth, do not develop these resources, and build up our coast with a working and useful population, instead of pursuing the selfish course they are now, which is that of the usurer.

Our capitalists and business men are blind to their own interests, in not interesting themselves in the establishment of manufacturing enterprises, which will secure for them a certainty of fair returns for their encouragement.

The people of this Coast cannot afford to let existing opportunities lie idle, *as a dependency on foreign sources means our impoverishment. Manufacturing guarantees the reverse, as it furnishes employment to, and retains among us, consumers*, that vital quantity in a progressive and permanent prosperity.

We have much pleasure, however, in being able to refer to some notable exceptions to the general apathy of our business and moneyed men.

Heading this article will be seen an illustration of the results of the energy and public spirit of one of the leading and pioneer mercantile firms on the Pacific Coast.

Messrs. Whittier, Fuller & Co. several years since commenced the manufacture of White Lead in this city.

They purchased ground on Fremont street, between Howard and Folsom, covering a surface of 137 6-12x275 feet, and thereon erected factories and sheds, for the purposes of the business.

Their whole works, machinery, and appliances, are on the most approved plans, and excel in detail and completeness those of any other White Lead factory in the world.

This is essentially a *home institution, from the ground through to the finished product of their mills.*

Few can realize the importance to the whole community of this enterprise.

In the first place, it encourages the development of our mines, as all the pig lead used is the production of our own coast.

It thus gives the Miners employment.

As all lead ores have to be smelted to get the metal,

It thus gives the Smelters employment.

The transportation from the producing points invokes aid of the carriers:

It thus gives Teamsters and Transportation Companies employment.

A very large quantity of oil is used in the grinding of the lead. All this oil is crushed from seed raised in this State.

It thus employs the Farmers.

All the pots used in corroding-sheds are made here.

It thus gives employment to the Potteries.

The maintaining of a factory requires the services of machinists, millwrights, and laborers:

It thus gives employment to an Army of Operatives.

And in fact, everything in and about the works is of home manufacture. *Now, what does the employment of the many branches of industry hereinbefore enumerated demonstrate?* This fact: that as they are *all consumers*, their wants *engage every business* on the Coast to supply them.

The product of the

Pioneer White Lead Works

Is not excelled by any other make in the world. It is guaranteed *strictly pure; it is white, very finely ground*, and has *superior body* and *covering properties.*

The manufacturers announce their determination to always offer it to consumers at less prices than any imported brands.

As against the imported, there would be great economy in its use, even at equal prices. All painters know that White Lead that has been packed any considerable time loses a great deal of its vitality, in the absorption by the kegs of a considerable quantity of the oil; leaving a hard mass in the keg, involving time and expense in its extraction and working up for use, and a costly addition of oil.

The Pioneer being all freshly packed,

all this expense is avoided.

We know what the White Lead is, and we have no hesitation—in fact we take pleasure—in recommending our brother architects to write it in their specifications and to *insist on its use: first, on the score of quality; second, economy; third, the general benefit to all of us.*

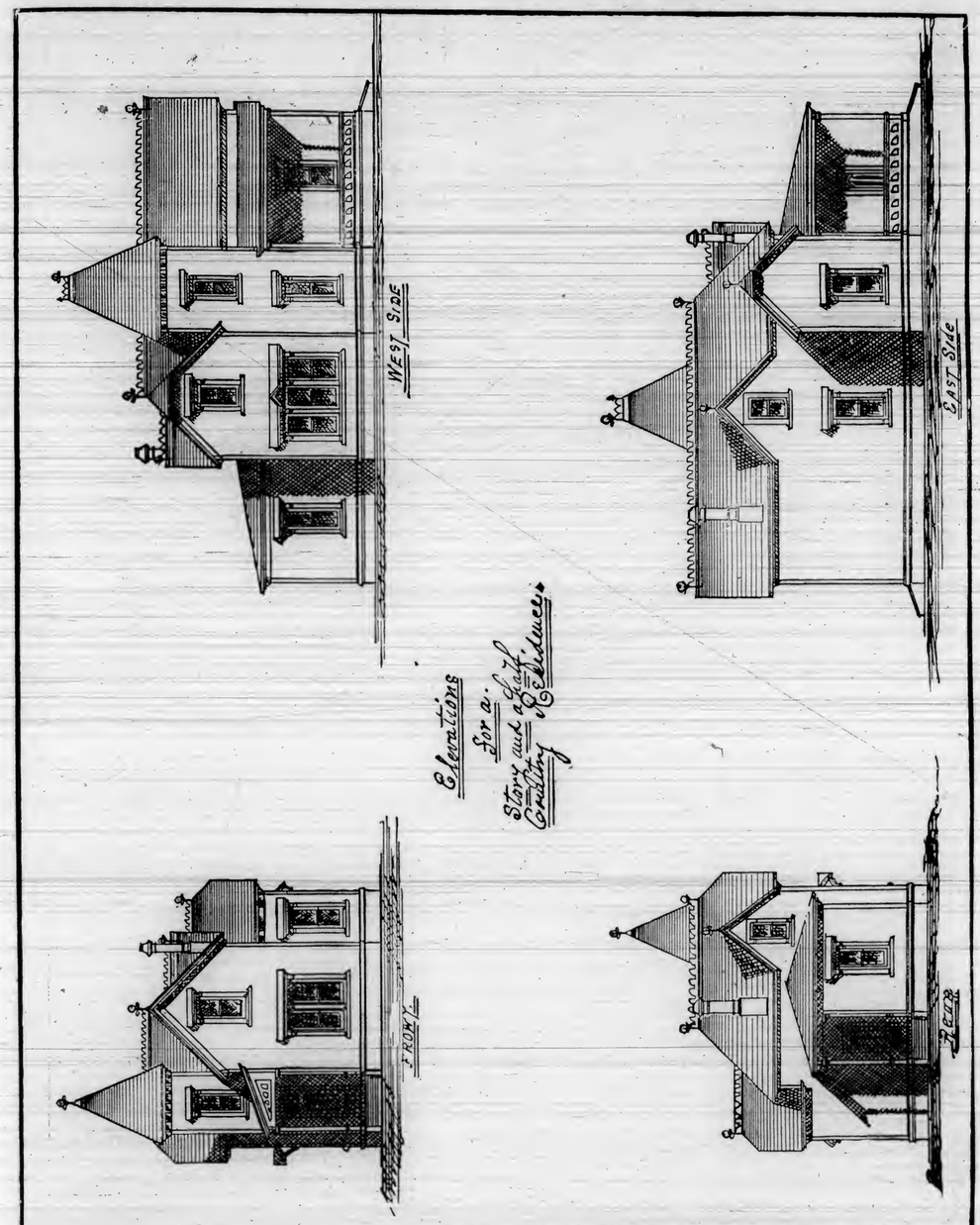


PLATE C.

ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIX

DESIGN FOR A COTTAGE.

PLATE A.—FRONT ELEVATION.

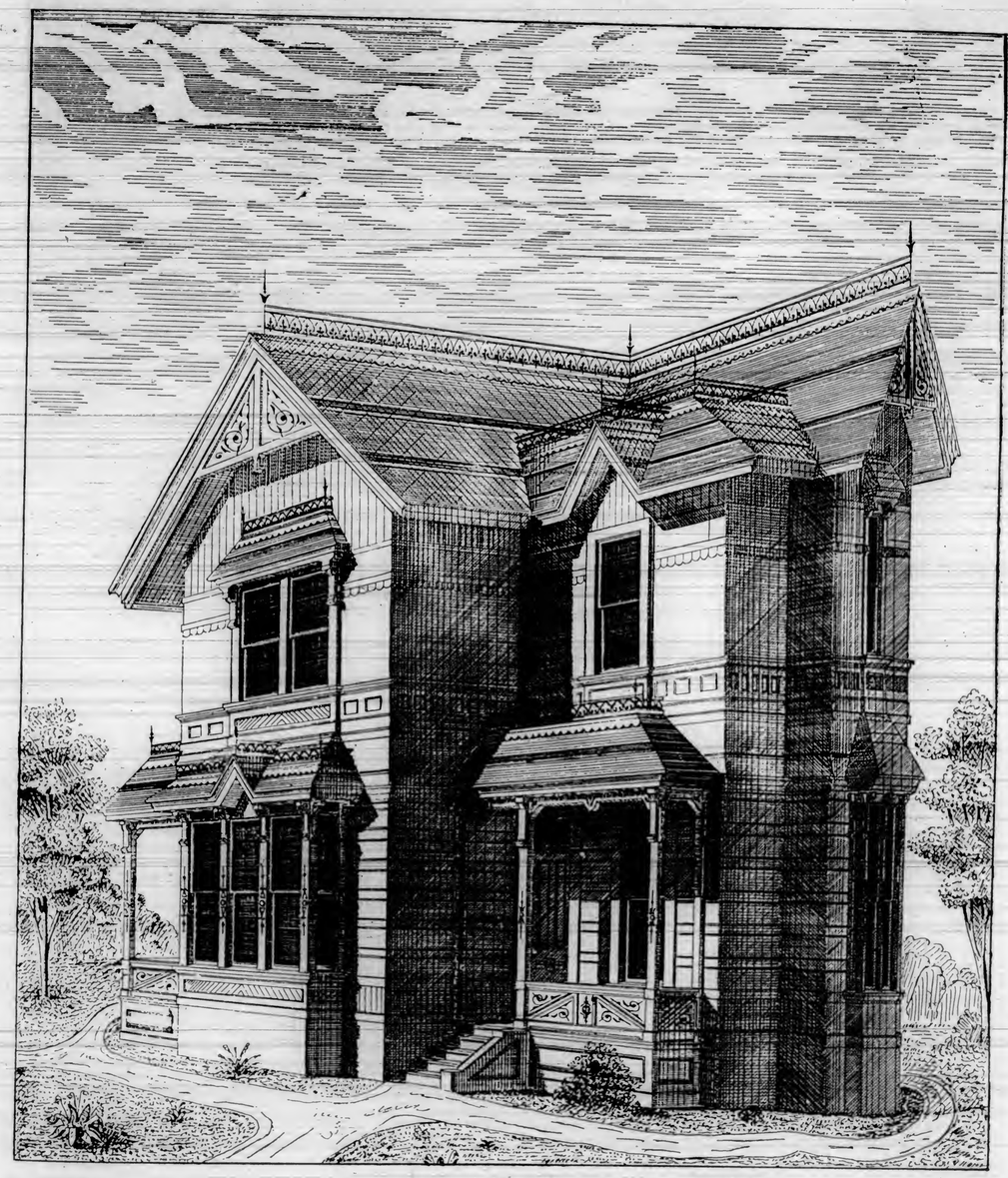


PLATE B.—PERSPECTIVE.

ROYAL INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIV

Russell & Co's "Massillon" Pony Saw Mill.

Especially Adapted to Farm Engines—Capacity from 3,000 to 7,500 feet per day.

To have a saw-mill that could be easily moved from place to place is a *desideratum* that has long been devoutly hoped for by more than one of our *mountain timber section owners*. The above cut gives a splendid illustration of the manner in which lumber may be manufactured with a small capital and minimum cost.

This mill is made by the firm of Russell & Co., Massillon, Ohio, and they have deemed it best to bestow the name of their town upon their own inventions, and so it is to-day that the

Massillon Pony Saw-mill

Is known all through the great lumbering regions of the West. We are satisfied that when this invention has been brought to the notice of our California capitalists and lumbermen, they will at once take measures to put these mills in operation all over the coast. When they consider that the principal item of expense, viz., logging, can be so much reduced by the use of one of these mills; and also that they can cut a great deal of timber that would otherwise be left standing, simply because it was too far away from the mill, we have no doubt that a correspondence will at once be opened between them and Messrs. Russel & Co., resulting greatly to the benefit of each party.

"The mill is one which needs only trial to recommend itself. Having many calls for mills to run with our engine, we looked the ground over thoroughly, and after testing several, selected this pattern as the best. We have made many improvements, and such as will commend themselves to all who are in want of mills. Our object has been and is to furnish a mill which will do good work, and the most possible of it, with the farm-engines of to-day. We furnish the mill, both single and double, with saws from forty to fifty-six inches in diameter below, and twenty-six to thirty inches above.

"To those not familiar with the difference between right and left-hand mills, we would say: The term does not refer to any special convenience of either hand, but to the side of the mill at which the saw is placed, the teeth pointing in a given direction. The left-hand mill is adapted to all engines having the band-wheel at the right of the engineer as he stands at the fire-box; the right-hand, to those having the band at his left. Our engine goes with left-hand mill.

"Though left-hand mills only are commonly kept in stock, we aim to be prepared to furnish right-hand as well. The top-saw attachment enables the purchaser to handle with ease the largest logs, and at the same time allow the use of a saw adapted to the power used. We furnish either solid or patent planer-tooth saw. This last is especially recommended for the inexperienced, being easily kept in order, and requiring but a few moments to change from the dullest to the sharpest condition, and this without the use of a file. In the absence of special orders, we always send the saw of standard gauge. Those desiring thinner saws should order early enough to enable us to procure such from the factory.

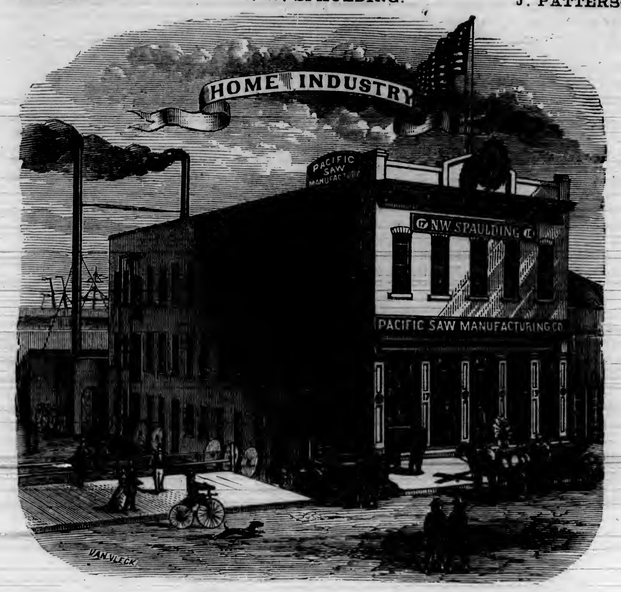
"Our Pony Mills have a capacity of from 3,000 to 7,500, or even 10,000 feet of lumber per day, depending upon the power used. A good ten-horse engine, with properly proportioned boiler, will make from 3,000 to 5,000 feet, and even more.

'The light cheap engines falsely rated ten-horse, are not desirable saw mill engines, and we do not recommend our mills to be run with them. Our thirteen-horse engine will cut from 4,000 to 6,000 feet per day; the sixteen-horse, from 5,000 to 8,000, and even 10,000 feet per day.

"Unless ordered shorter, each mill has a thirty-foot carriage and sixty-foot track. We use the lever-set, with either independent or simultaneous head-blocks. These are two in number, but more may be added whenever needed, without special fitting or tearing the mill apart. Wrenches, mill-bar, cant-hooks, oil-can, and sixty feet of main belt, with wheels and axles for lumber-car, make the outfit complete. A tightener, shown in the cut, adds to the power of the belt. The top-saw attachment has independent tightener, and can be put on any mill we build.

"We propose to furnish those who order of us a strictly first-class mill, the best for the work designed in the market; to this end we shall spare no labor or expense. Improvements are constantly being made. Though but two years in this business, we have met with great encouragement from our customers, and can safely assure all who purchase that in the 'Massillon' they have a mill which has already won for itself the front rank."

C. P. SHEFFIELD. N. W. SPAULDING. J. PATTERSON.



Pacific Saw Manufacturing Company,

17 and 19 Fremont St., San Francisco.

ESSENTIALLY A HOME INDUSTRY

This establishment has the most ample and complete facilities for the manufacture of Saws of every description. Repairing in all its branches, retempering, straightening, gumming, grinding, polishing, etc.

We make a Specialty of the Manufacture of the N. W. Spaulding Patent Circular Saw Plate, with inserted adjustable teeth. This is an invention of incalculable value to the lumbermen and sawyers, as the plate of the ordinary saw, which is very expensive, becomes useless when the teeth are worn out. But this patent plate is so constructed that when the teeth are worn out, they can be detached and new ones inserted, thus saving the valuable part, *i. e.*, the plate, and affording the advantages of a *new saw* at a nominal expense.

We would call the particular attention of *woodsmen* to our CROSS-CUT SAWS. We make them of any desired length, and ship them ready for immediate use. We guarantee our new Patent Tooth Saws, with our patent drags or clearing teeth (either double or single), to excel in cutting capacity any other make of saw.

With our improved machinery we are enabled to grind these saws from the tooth to the back with a PERFECT BEVEL. Our saws therefore can be used with less SET than those of any other manufacture.

All of our saws are made of the finest quality of steel. We keep on hand saws of every description; cross-cut with classified cutting teeth and single and double drags, tenon or framing with diversified teeth, pit, taper drag, gangmill or sash, muley, narrow pointed or ship carpenters, steel-back butchers, buck or wood, hack, table, compass, keyhole, pruning, etc.

No saw is allowed to leave this establishment until it has been tested; we therefore are enabled to guarantee every saw that comes from this house.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

BUS. MAN. OF ARCHITECT.—To what nation is due the credit of the invention of the railroad? When did steel rails first come into use? You will oblige me by answering the above questions in your next. F. L. F., Sacramento.

ANS.—To England is due the credit of inventing the railroad, now so extensively used throughout the world, and particularly in these United States, but it was only by degrees that we arrived at the present method. It was in 1649 that it was first used to relieve draught animals, on the wooden tracks, in the mines of Hartz, in Germany. In 1676 it was adopted in the mines of Newcastle, England, where, in order to lessen the destruction of the wooden rails, metallic strips were placed over them. Cast-iron was used to replace wood in 1767, but being found too brittle was rejected and wrought-iron substituted during the year 1805. This continued to be employed until the method of laminating the rails was discovered in 1820, and it is only since 1862 that steel rails have come into use.

We have received three communications, the past month, all referring to the same subject. A debating society that finds itself at a loss to select a good subject to discuss, must be composed of very crude materials. However, if a subject is wanted that will create an almost endless discussion, we will give the following, hoping all three societies will discuss it and send us the results of their arguments: RESOLVED, *that the invention of making steel, direct from iron ore, is the most useful invention of the past fifty years.*

BUS. MAN. OF ARCHITECT.—You will oblige me greatly by giving me a formula for a composition to fill holes in iron castings.

F. G. S., Marysville.

ANS.—Sulphur, one part; sal ammoniac, two parts; powdered iron turnings, eighty parts; make into a thick paste with water immediately before using. The materials should also be kept separate until the time they are wanted.

WHITEWASH FOR OUTSIDE WORK.—A thrifty housewife wants us to give her information "so she can make whitewash that will stay on wood and will not scale off."

Take of good quicklime one half a bushel; slack in the usual manner, and add one pound common salt, half a pound sulphate of zinc (white vitriol), and one gallon of sweet milk. The salt and the white vitriol should be dissolved before they are added, when the whole should be thoroughly mixed with water to give proper consistency. The sooner the mixture is then applied the better.

A NEW LEADEN ROOF is being placed on the cupola of St. Peter's, Rome, which it will take two years to complete. Something of the magnitude of the building may be inferred from the fact that the roof was begun 17 years ago, and although the laborers have not been constantly at work, the work is enormous. The roof is divided into 16 sections, each of which requires 1,000,000 pounds of lead.

Send for a copy of the "Steel Square and its Uses," handsomely bound and illustrated. Price 75 cts.

ARCHITECTURAL COMPETITIONS.

There are but few questions upon the discussion of which we could enter, surrounded with greater diversity of opinions, than the subject-matter of this—the first of a series of articles on *Architectural Competitions*. And as it is our purpose to pursue an impartial and exhaustive review of both sides of the subject introduced, we hope that all brother architects and others interested in the issue will send us the results of their experiences and observations, and their special views upon either side.

But we shall reserve the right to withhold the publication of communications in which personal feelings are too prominently manifest. We are aware of the fact that many architects feel aggrieved at results which have transpired, in connection with which they claim to have suffered unfair treatment. And as all architects, like other men, are not supremely angelic in temperament and disposition, a sense of wrongs imposed sometimes prevents statements entirely divested of personal feelings; and sometimes the desire for a *little revenge* intermixes. We shall strive for a square, unbiased relation and development of facts on both sides, leaving the merits of the issue with those who may feel interested in it.

We make these remarks simply because, to some extent, we understand the proclivities of the human mind, and the aptitude that exists in mankind to state cases in which they are in any special manner interested, so as to "make the best of the story" for themselves and that prejudices provoked or worked up by grievances real or imaginary often lead to extravagant recitals—and these we desire to avoid, believing that fair and rational discussion and argument always produce better results.

We are aware that the questions in issue are complex and diversified; and we entertain no idea that we shall be able to make the subject in hand so conclusively plain that there will remain no differences of opinion. The first inquiry that presents itself is:

What first gave rise to architectural competitions; and how were they conducted? We are not required to look back very far to find the commencement of the competitive system. At the early part of the present century architectural study was in so lethargic and dormant a condition, that it may have naturally occurred to more than one individual that by the adoption of the competition system some latent talent might be developed, and the abilities of untried and obscure men be made known, who would infuse new spirit into the art. Even at that period a few eminent, practical men existed, possessed of great learning and scientific knowledge, and whose memories will ever be held in veneration and respect; a large majority, however, were content to work out the details of their designs much according to the rule of thumb, copying as they thought, the correct proportions of their buildings from old sources, but failing to catch any of the vigor of the style in which they were working—when a few men of real genius were brought to light through the competition system. These, catching the true spirit of architecture, threw such fire and originality into their work as to produce buildings of which even the ancients might have been proud, and handed down to posterity edifices "full of grace and beauty," in harmony of conception, perfectness of proportions, and elegance of adornments.

The success of a few men in this direction gave an impetus to the competition system, and the conceived or real glory that attaches to the production of "*an elegant original design*," has to a greater or less extent created a fascination among certain classes of architects, which, in places where the competition spirit predominates, raises the question whether *private practice* is not thereby compromised, and whether men who devote their energies, and whose minds and thoughts are absorbed in the production of "splendid specimens of pencil, pen, and brush work," to the neglect of the more important—constructive science—are not lending themselves to the establishment of a system which must naturally work an injury to the profession.

Although it is open to grave doubt, whether the system of competition, even for a large building, is the best means of obtaining a perfect design, few, perhaps, would be inclined to take very violent exception to an honorably and *fairly* conducted open competition (if such a thing were possible) for a very costly and magnificent building; but even the most ardent admirer of the system would never justify its being extended to what is now so common, viz., the advertising for designs for buildings of every conceivable sort and size, often combined with instructions of the most vague description, and sometimes in terms even insulting in character. We shall more particularly refer in the course of these articles to competition in the larger and more costly buildings.

The *Building News* of November, 1879, has a few remarks upon this subject, so much to the point that it is with pleasure we copy them. "In the first place, it must be allowed that the profession is not what it used to be before the system of competition was introduced, and that the art has sunk in reputation ever since. Architecture is now, far more than it was, a commercial industry, and competition has done much to place the product of the architect's skill on a level with other commodities. The consequences have been fruitful of mischief. The art has been brought to a level of manufacture; architectural design has passed virtually into the hands of a few experts, whose only object is to turn out drawings of exteriors without the slightest regard to structural or architectural principles; feats of draughtsmen are mistaken for architecture, while the standard of professional morality has been considerably lowered by the practice of competing architects sending in designs far in excess of the real cost. But there is another aspect of the question, and one which concerns the younger and less fortunate members of the profession. How are the less fortunate of the profession to obtain the position and the emoluments of the more successful, if open competition be done away with? Here we have, unquestionably, the greatest difficulty to solve."

If this criticism of competition be correct, and the result of the competition system be to lower art, so that showy exteriors are made regardless of architectural and structural principles, we have at a very serious sacrifice purchased the few examples of fine buildings that have come to us through the medium of competition; and taking into consideration, also, the enormous amount of time and money that has been expended—the heart-burning and disappointment that have resulted to nine-tenths of those who have engaged in competition work—there is scarcely a building in the country, however grand and beautiful it may be, justifying the sacrifices made in its production.

[TO BE CONTINUED.]

Diffusion of Architectural Knowledge.

In many of our eastern and European exchanges we find reports of proceedings in societies formed in the interest of the architectural profession, and lectures by learned and able professors and others, designed to unfold and elucidate the many grandeurs which for ages have surrounded the science upon which so much has been written, and which to-day remains as fresh and as prolific in challenges to the ablest of mankind to grasp its intricacies, as when the foundations of the Vatican and Mausoleum of Rome were laid, or birth was given to the first thoughts and conceptions which culminated in the spires and domes of the many world-renowned edifices which have stood for centuries as monuments to the skill of those great men who spent their lives and mental energies in the production of those great architectural magnificences which have rendered their names immortal and their memories imperishable.

Architecture in its higher relationships has been neglected by many at least of those professing its practice in San Francisco. We have settled down as a profession into grooves of our own making, each following more his personal inclinations than pursuing and incorporating in his practice the advanced knowledge sought after by our professional brethren in other parts of our country and the enlightened cities "beyond the seas." Architecture is a science of growth and expansion, ever developing new features of beauty and utility, and those who fail to pursue its revealments closely, and gather its fruits as they ripen, naturally lose the advantages which flow from an earnest pursuit after more extended and perfected knowledge.

We trust that with the establishment of a society in San Francisco, the spirit of kindly, earnest seeking after the more perfect will actuate its members, and that measures will at once be adopted to institute courses of lectures, and other auxiliaries calculated to make many of us masters of our profession, as far as mastery in architecture is possible in an individual or society of men. With all the knowledge possessed by any, there is more for them to learn; and after all who may enroll their names upon the archives of the new society shall have passed away, there will still be heights and depths in architecture which future generations will not be able to reach, and neither centuries nor the whole of time itself will exhaust its fountains. Brethren, let us seek to enjoy at least some of the dew-drops as they fall from the leaves of the great tree under which we seek shelter.

Various Gleanings from Exchanges.

THE destruction by fire of "Le Printemps" great dry-goods house in Paris is supposed to have been caused by the ignition of escape gas from a defective pipe. Within nine hours from the time the alarm was struck, the whole interior of the enormous building, eight stories in height, was entirely destroyed, and portions of the walls had fallen, causing a loss of $2,000,000. This great destruction of property, it is alleged, was caused by insufficiency of water supply, and a singularly inefficient fire department, with apparatus of very primitive character.

The suggestions presenting themselves in this connection are, that in the older cities of Europe, great care is practiced in the erection of buildings, so as to render them substantial and safe against all contingencies, without due regard to the devastating possibilities of fire—a sort of ostrich-like idea, which presumes safety in the mere hiding of the head in cases of danger, while the whole body remains unprotected from assault.

Fire is no respecter of costly or carefully constructed buildings, as the history of conflagrations presents innumerable illustrations where edifices supposed to have been entirely fire-proof, have been destroyed by the devouring element; while in other portions of the globe—San Francisco for instance—the most inflammable character of buildings are erected, and but seldom, since the great fire of '51, has any great destruction of property occurred, mainly because "our fire department" is perfectly organized, under good control, and supplied with the best of everything in the line of fire apparatus. Precautions *against* dangers are well enough in their way, but *being fully prepared to meet and successfully combat them when they present themselves*, is equally necessary to safety.

ANOTHER.—"The destruction of the new theater at Nice, standing upon the banks of the Mediterranean, resulted from a like cause—the ignition of escape gas. One hundred and fifty persons are known to have perished. The narrow, dark, and tortuous corridors were soon choked by the struggling crowd"; and to render the terrible disaster ridiculous, the fire facilities employed consisted mainly of lines of men passing "buckets of water, dipped from the sea"—a method frequently resorted to in our boyhood days, fifty years ago and prior thereto, when hand-engines only were known, and the supply of water in many cases, was pumped by hand from the "street pumps" to supply the machines.

The Board of Health of Newton, Mass., have issued a set of regulations which, among other things, requires that before any plumbing or drainage work is undertaken in any building, a complete plan of all the pipes, traps, cesspools, and other items, shall be submitted to the City Engineer for his approval or modification, as the case may be; and that no work shall be carried out except in accordance with plans so approved or modified."

Such a regulation would be good, provided the "City Engineer" is a qualified party, and possesses the integrity necessary to adjudge every case upon the basis of actual merit, without special prejudice or favoritism to any.

Our Illustrations.

Plate A represents a conveniently planned Country Residence, with inexpensive showy exterior. The internal arrangements are shown by the plans in connection with the "Front Elevation." Additional rooms may be obtained in the roof-story or loft, if desired. Plate B represents a perspective view of the building. We state no specific amount as the cost of the building, as the sum can be made to vary from $3,500 to $5,000, according to the economies practiced. Plate C represents four exterior views for a small cottage.

Security in House Drainage.

IN our April issue we presented an article upon the above subject, which has led to numerous inquiries by parties interested in house ownership. Although the suggestions were new to many of our readers, they were not so to us, as we have applied the same principles in our professional practice, and can vouch for the correctness of the method proposed.

We direct attention to an article in the present issue, entitled "*The most thoroughly sewered cities not always the most healthful*"—this being the first of several articles upon the same subject—a subject in which every reader of this journal, and every member of this and all other communities, are deeply interested, or should be. We submitted the suggestions contained in the heading of said article to on of our principal *practical plumbers*, and were surprised to hear him express the opinions, without qualifications, that "the more sewers the better," "nonsense to talk about sewers making cities unhealthful." It is this sort of jumping at conclusions that produces common errors. We shall develop our position in the matter in the course of the series of articles contemplated; but it is simple rashness on the part of practical men, to pronounce as absolutely certain, propositions surrounded by many contingencies, and ifs and ands.

Blue Streaks.

What is the matter with papa? he seems as cross as two sticks. I'm afraid he will bite my head off sometime: can you tell me, John? Certainly I can. Papa has a lot of men he calls "wood butchers," up at our new house; they think themselves smarter than all creation, when the fact is they don't know as much as our "Sancho." They told papa not to have an architect, as they could make the drawings and specifications, and save him the expense. Papa says they have spoiled the house, and that it looks more like a quail trap than anything he knows of; he says nothing is right, and it looks like—well, I won't say it; it is a cuss word. The stairs are so steep and crooked that Mrs. Ross, who was in there yesterday to see the house, fell and broke her leg, and will be laid up for two months. She says papa is foolish to let those men spoil his house. But papa cannot help himself; he signed a contract, supposing it all right. You ought to hear him swear. Jones, the plasterer, says the walls are getting full of blue streaks, from the effects of the bad words papa says when he is up there. I wish the house was finished, so that papa would be good natured like he used to be.

N. B.—Conversation which actually took place between the daughter and son of an acquaintance of the writer. B.

The Walnut Supply.

SPEAKING of the rapid disappearance of walnut from the forest, the *Northwestern Lumberman* says: To-day a dry-cull is thought more of in this market than a counter-top was two years ago. In Boston some grades of walnut have advanced at least $12 per thousand in the past year, and prices in other markets are proportionately higher. Dealers are thick in the walnut regions, eagerly, and we might say ravenously, picking up the green lumber, and we hear of unscrupulous buyers offering mill-men an advance of from $5 to $10 per thousand for their cut if they will repudiate the contracts which hold it. Furniture manufacturers in both the East and the West are getting anxious, and seriously considering what wood will take the place of walnut, the scarcity of which is giving them so much trouble. Indiana, heretofore, has been looked upon as the great walnut State, but it is now practically stripped of that kind of wood. Canada West, that once produced walnut of fine quality, now yields but little. The bulk of the future supply must be obtained in the States further south. We hear it estimated that the furniture establishments of this city (New York) cut up nearly 400,000 feet of lumber daily—all, except a very small part of it, being walnut. Chicago dealers are buying all the walnut they possibly can. They look upon it as an investment, and we hear of heavy contracts nearly every day. We hear of sales of firsts and seconds at $70; culls at $38; oak at $26, and butternut at $35.—*The American Ship*.

Straw Lumber.

THERE can be no question that the straw lumber is admirably adapted to many kinds of finishing work, barrels, table and counter tops, fine doors and ornamental work; and we are assured that it can be produced and sold in competition with the finer grades of pine, or in competition with wide walnut, at about one-half the price of the latter. The standard manufacture is in widths of 32 inches, a length of 12 feet, and a thickness corresponding to that of surfaced boards. These dimensions may be varied to suit such orders as may be given, and embrace any width, length, or thickness. Unlike lumber, however, narrower widths are the most costly. The straw lumber may be ripped with the hand-saw, or upon the buzz-saw; may be run through the sticker for the manufacture of moldings, and takes a nail or screw about as well as oak. It may be finished with varnish or with paint, and is susceptible to a high polish. It is practically water and fire-proof, being manufactured under 500 degrees of heat, and we are assured has been boiled for some hours without any apparent change of structure. Its tensile strength is greater than that of walnut or oak, and its weight about one-fifth greater than the former when dry. It is made from any kind of straw, including hemp and flax fiber—in fact, from any material that will make pulp—and a ton of straw will produce 1,000 feet of boards. The pulp is rolled into thin sheets, a number of which, corresponding with the thickness of the lumber desired, are placed together with a peculiar cement, which is claimed to be water-proof, and are then rolled under a pressure sufficient to amalgamate them into a solid mass, which may be worked with the plane, if desired.

When it is remembered that it takes 100 years to grow a tree to maturity, suiting it for commercial purposes, and a tree producing 32-inch lumber will require fully twice that time, while 20,000 feet per acre is a large yield under the most favorable circumstances, it will at once be realized that where 2,000 feet can be taken from an acre of ground, for an indefinite number of years, the process which enables such a result to be accomplished, and which will yield a really valuable lumber, is one of vast importance. We look for valuable results in the future in the manufacture of lumber from what is practically a waste material, but which will be produced in endless quantities so long as the United States maintains its character as a grain-producing country. The factory at the time of its destruction by fire was turning out 20,000 feet per day, and had orders for 10,000,000 feet.—*Chicago Lumberman*.

Postal Money Orders.

Though but sixteen years old, the Postal Money Order System has become a gigantic business. The present head of the Money Order Department, Mr. C. F. McDonald, was its originator. The money handled last year amounted to over $100,000,000, and the work of the department is rapidly increasing. About one-eighth of the business is done in the city. In 1879 the transactions numbered 1,161,378, amounting in money to $43,652,273.37. This was an increase over 1878 of 100,119 transactions and $5,000,000. The next year showed 1,351,095 transactions, amounting to $51,231,749.04. This was a gain over the previous year of 189,720 transactions and $7,579,475.67. The money orders issued during the last fiscal year numbered 7,240,537 for the whole United States. This in money reached the enormous sum of $100,352,818.83. The fees paid to the Post-Office Department amounted to $916,452.80.—*Scientific American*.

To Anneal Lamp Chimneys.

THE following receipt is from a Leipsic journal devoted to the glass interest: Place your tumblers, chimneys, or vessels which you desire to keep from cracking, in a pot filled with cold water, add a little cooking salt, allow the mixture to boil well over a fire, and then cool slowly. Glass treated in this way is said not to crack even if exposed to very sudden changes of temperature. Chimneys are said to become very durable by this process, which may also be extended to crockery, stoneware, porcelain, etc. The process is simply one of annealing, and the slower the process, especially the cooling portion of it, the more effective will be the work.

Intelligent San Francisco Correspondent.

The *American Architect and Building News* contains the following from its San Francisco correspondent:

"Building materials and labor is about the same as for the last three months.

"It was thought the connection of the Southern Pacific road would open up the trade of Arizona and Mexico, but as yet there are no indications that way. If such a state of business continues, there will not be much improvement in our line.

"No further steps have been taken as yet toward completing the chapter it was proposed to form here by the architects, and it is somewhat doubtful as to its being carried out."

In this way erroneous reports about California are constantly being circulated. True, San Francisco has not "gobbled up" all, nor an extra conspicuously large proportion of the trade opened up by the Southern Pacific road, but it has secured a fair share, and it is not likely that our merchants and others will permit favorable trade opportunities to slip through their fingers. But whether much or little comes through the channel named, San Francisco and California are prosperous at present and prospectively, and there is no good reason for the statements referred to. There are good prospects "in our line," even if the Southern Pacific feature brings this coast nothing. The germ of prosperity is within our own borders, and while dullness has prevailed to a large extent, no sane man with an intelligent understanding of matters will predict decline and prostration to a State in which every element of prosperity is inherent and abounds.

His say about the "chapter" is amusing. Before his "doubtful" prognostications were in type, the chapter completed its work, and is now fully organized, with officers elected, and constitution and by-laws printed.

Market Reports.

LUMBER.—For the past month the receipts of lumber have been very heavy. We report an increased demand, and prices very steady.

Receipts since January 1st:

Lumber, feet	70,691,370
Shingles, No.	16,770,010
Laths, No.	6,579,200

NAILS.—The general demand has been very good. There is a full supply on hand. Since January 1st we have imported 77,524 kegs.

10 to 60	pennies, are quoted at		$3 70
8	"	"	3 95
6	"	"	4 20
5 and 4	"	"	4 45
4 and 5	pennies, brad heads, at		4 95
6	"	"	5 20
8	"	"	4 95
10 and upward		"	4 70
3 penny fines		"	7 20

PAINTS.—The demand is far in excess of the same time last year. No change to report in prices.

Building Intelligence.

We present a much larger report this month than we did in our April issue. By comparison with May of last year, we find a large increase in the number of buildings in course of erection, and of far greater value. Still, many of the architects in San Francisco have but few new engagements on hand, and some offices are entirely idle. We know of some, and have heard of many owners of real estate, who "*want to build*," but the disposition in this direction is, in a majority of cases, controlled by an unwillingness to expend the requisite amount of money to procure desired results. People who build houses now, want all modern improvements, and "*first-class*" everything, yet confine their ideas to the cost of buildings heretofore erected, with but a limited or no supply of the things now desired. The opinion prevails that wages are less and materials cheaper "than they used to be"; but even so far as this may be true, the difference is fully overcome by the demand for better and more carefully executed workmanship, and the use of more and better materials. If owners would be satisfied with the

same general character of buildings now as were considered fine or good five or ten years ago, buildings could be erected for less sums than at the former period named. But everybody wants better buildings, and we simply suggest the difficulty of producing better at less than the cost of inferior edifices a few years ago.

We will here mention another material fact as affecting prospective improvements. *Hundreds* of our best mechanics have left this city for want of steady employment. Some have gone to Portland, Oregon; others into the interior of this State; some to Honolulu, etc., but the greater number shaping their course eastward of the Rocky Mountains, from whence have come so many reports of "brisk times and good wages." Consequently, greater, rather than less, wages may reasonably be expected, should a "boom in building activities" set in.

SAN FRANCISCO.

Three-story brick building on Montgomery avenue near Jackson street. Owner, J. G. Ils; architects, Huerne & Henrickson. Day's work. Cost. $5,000.

Two-story and basement frame dwellings on Ellis street near Leavenworth. Owner, Wm. Sharon; architect, Gaynor; contractor, J. J. McCready. Cost $8,000.

Two-story and basement frame dwelling on Sutter street near Jones. Owner, — Kohler; architect, P. R. Schmidt; contractors, Terrill & Slaven. Cost $12,000.

Central Gas Works on King street between Second and Third. Brick buildings for offices; gas receiver; cost $50,000. Owners, Central Gas Company; architect, H. D. Mitchell; contractors, Hughes & McCann.

Two one-story frame stores on Hayes street between Gough and Octavia. Owner, Lies; architect, A. Pissis; contractor, J. T. O'Brien. Cost $1,600.

Two 2-story frame buildings on Fulton street between Van Ness avenue and Polk street. Owner, L. Murr; architects, Curlett & Eisen; contractors, Ross & Hutchinson. Cost $4,000.

Two stores in El Paso, Texas. Owner, Morris Ulman, of San Francisco; architects, Curlett & Eisen. Day's work. Cost $4,000. (All mill work was worked in this city; we hope this is but the beginning for that section of country).

One-story cottage on Scott street between Haight and Page. Owner, Theo. C. Bee; architects, Curlett & Eisen; contractor, David Perry. Cost, $1,550.

Alterations to August Cahen's residence at Highland Park. Architects, Curlett & Eisen. Day's work. Cost, $800.

Alterations to residence at the Eisen vineyard, Fresno county. Owner, F. Eisen; architects, Curlett & Eisen. Day's work. Cost, $1,000.

Wine cellar at the Eisen vineyard. Day's work. Curlett & Eisen, architects. Cost, $6,000.

Additions to three buildings on Folsom street between Twelfth and Thirteenth. Owner, A. Borel; contractor, J. Scheerer. Cost, $2,250.

Four-story and basement brick building on corner Market and Main streets. Owner, — Gibbs; architect, Cleaveland. Day's work.

Two-story and basement brick building on Mission street, between Third and Fourth. Architect, H. T. Bestor; contractor, C. Chisholm. Cost, $10,000.

Frame dwelling on Geary street, between Webster and Fillmore. Owner, H. Oleovich; architect, W. C. Hoagland; contractor, R. P. Hurlbert. Cost, $4,500.

Alterations of two tenements on Park Avenue. Owners, S. Plageman & Co.; builder, F. Klatt; day's work. Cost, $1,000.

Repairs and additions to house No. 1524 Jackson street. Owner, Captain Jason; architect, P. R. Schmidt; contractors, Waterbury & Maxwell. Cost, $2,500.

Three-story frame dwelling on Vallejo street, near Sansome. Owner, D. Fleming; architects, Townsend & Wyneken; contractors, Joffars & McCann. Cost, $2,675.

Two-story frame dwelling on the corner of Scott and California streets. Owner, W. J. Callahan; architects, Wright & Sanders; contractor, —— Burpbee. Cost, $7,500.

Two-story frame dwelling on Bush street, near Baker. Owner, J. W. Wetmore; architects, McDougall & Son; contractor, A. Jackson. Cost, $2,100.

Two-story and basement frame dwelling on Post street, between Octavia and Laguna. Owner, Dr. Van Den Bergh; architect, A. Schroepfer; contractors, Waterbury & Maxwell. Cost, $5,000.

Two-story frame and brick basement on the corner of California and Octavia streets. Owner, Mrs. Atherton; contractors, Moore Bros. Cost, $22,000.

Buildings on N. W. corner of Kearney and Broadway streets are having a new front. Owner, Dr. Hillard; day's work. Cost, $——.

Two-story frame dwelling with brick basement on Van Ness avenue, between Washington and Jackson streets. Owner, —— Van Wycke; contractor, Samuel Hills. Cost, $——.

Two two-story and basement frame dwellings on Scott street, near Sacramento. Owner, Thomas Holt; contractor, F. Swett. Cost, $5,500.

Two-story frame dwelling and brick basement on Twenty-first street, between Valencia and Guerrero. Owner, Mr. Rugge; contractor, —— Clayburgh. Cost, $3,000.

Two-story frame dwelling on Twenty-fifth street, between Guerrero and Dolores. Owner, Mrs. M. E. Lightner; contractor, —— Binet. Cost, $2,200.

Three-story frame dwelling with basement on Van Ness avenue, between Eddy and Ellis streets. Owner, Captain Winkleman; architect, Charles Mau; contractor, F. Crowley. Cost, $15,000.

Two-story frame dwelling on Washington street, between Webster and Fillmore. Owner, Santiago Arrillaga; architect, H. C. Macy; contractor, J. T. O'Brien. Cost, $2,700.

Additions to house on Shotwell near Twenty-first street. Owner, —— Newman. Day's work.

Two-story frame building on Eighth street, between Howard and Folsom. Owner, F. Denhand; contractor, H. Moyn. Cost, $1,800.

Barn on Sixth street, between Bryant and Brannan. Owners, Peters & Cowie; contractor, D. C. Keller. Cost, $1,500.

Additions and repairs to dwelling on Ivy avenue, between Larkin and Polk streets. Owners, J. & J. Brown; contractor, D. C. Keller. Cost, $600.

Small dwelling on Market street, near Eleventh.

Engine-house and works on the corner of Fourth and King streets. Architects, Hoffmann & Curtis. Cost, $1,874.

Crystal Palace, between Sutter and Post, Fillmore and Steiner streets. This job is fairly under way, and the contract for brick-work, sewers, and grading let to Mr. McCarty for $10,300; architect, Victor Hoffman.

Two-story frame dwelling on Harrison street, between Ninth and Tenth. Owner, —— McEleany; architect, T. J. Welsh; contractor, R. Doyle. Cost, $2,200.

Two-story frame dwelling on Eddy street, between Devisadero and Broderick. Owner, Mrs. Webster; architect, T. J. Welsh; contractor, G. Hansbrough. Cost, $3,000.

Cottage on Clipper street, between Church and Sanchez. Owner, T. Fagan; architect, T. J. Welsh; contractor, —— Doyle. Cost, $1,200.

OAKLAND.

Frame school-house on Seventh street, West Oakland; two-story, 50x90. Contractors, Kennedy & Coveney; owner, Father King. Cost, $9,000.

Two-story brick building on the corner of Broadway and Tenth streets. Owner, —— Smith. Day's work.

At Highland Park, Brooklyn, two-story dwelling. Owner, S. J. Sinclair; architect, H. D. Mitchell; contractor, Alex. Watt. Cost, $5,000.

BERKELEY.

Deaf, dumb, and blind educational building at Berkeley. Owner, State of California; architects, Wright & Sanders; day's work. Cost, $40,000.

Two-story dwelling for John LeConte. Architect, Clinton Day; contractor, —— Broad. Cost, $5,000

ALAMEDA.

Five-room cottage on Taylor avenue, near West End avenue. Owner, L. H. Werson; contractor, J. W. Dawson. Cost, $1,200.

Same locality as above, Mr. C. L. Lassen is erecting a residence. Contractor, J. W. Dawson. Cost, $1,000.

Small cottage in rear of water-works building. Owner, Captain Thompson.

SAN RAFAEL.

Additions to dwelling, with stable. Owner, Wm Babcock; architects, Newsom Bros.; contractors Moore Bros. Cost, $6,000.

ST. HELENA.

Alterations and additions to dwelling of Mrs. W. B. Bourn. Day's work. Probable cost, $12,000.

STOCKTON.

Two-story dwelling for T. W. Miller. Architects, Percy & Hamilton; contractor, A. F. Gilbert. Cost, $3,200.

Two-story dwelling for Stanton Carter. Architects, Percy & Hamilton; contractor, A. F. Gilbert. Cost, $4,000.

Two-story dwelling for Judge Patterson. Architects, Percy & Hamilton; contractors, Carle & Crowley. Cost, $4,000.

Two-story dwelling for Justus Schomp. Architects, Percy & Hamilton; contractors, Griffin & Schacker. Cost, $4,000.

One and a half-story dwelling for J. M. Long. Architects, Percy & Hamilton; contractor, S. Blaisdell. Cost, $2,200.

Publication Notices.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

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Mechanics' Lien Law.

"Mechanics, material men, artizans, and laborers of every class, shall have a lien upon the property upon which they have bestowed labor, or furnished material, for the value of such labor done and material furnished; and the Legislature shall provide by law for the speedy and efficient enforcement of such liens."—Constitution.

"Mechanics, material men, artizans, architects, and laborers of every class, performing labor upon or furnishing material to, or used in the construction, alteration, or repair of any mining claim, building, wharf, bridge, ditch, flume, aqueduct, tunnel, fence, machinery, railroad, wagon road, or other structure, shall have a lien upon the property upon which they have bestowed labor or furnished material for the value of such labor done and material furnished. This lien shall not be affected by the fact that no money is due, or to become due, on any contract made by the owner with any other party.

"The land upon which any building, improvement, or structure is constructed, together with a convenient space about the same, is also subject to the lien. The liens provided for in this chapter are preferred to any lien, mortgage, or other incumbrance which may have attached subsequent to the time when the building, improvement, or structure was commenced, work done, or materials were commenced to be furnished; also to any lien, mortgage, or other incumbrance, of which the lien-holder had no notice, and which was unrecorded at the time the building, improvement, or structure was commenced, work done, or the materials were commenced to be furnished.

"Every original contractor, within sixty days after the completion of his contract, and every person save the original contractor, claiming the benefit of this chapter, must, within thirty days after the completion of any building, improvement, or structure, or after the completion of the alteration or repair thereof, or the performance of any labor in a mining claim, file for record with the County Recorder of the county in which such property or some part thereof is situated, a claim containing a statement of his demand after deducting all just credits and offsets, with the name of the owner, or reputed owner, if known, and also the name of the person by whom he was employed, or to whom he furnished the materials, with a statement of the items, time given, and conditions of his contract; and also a description of the property to be charged with the lien, sufficient for identification, which claim must be verified by the oath of himself, or of some other person.

"No lien provided for in this chapter binds any building, mining claim, improvement, or structure for a longer period than ninety days after the same has been filed, unless proceedings be commenced in a proper court within that time to enforce the same, or if a credit be given, then ninety days after the expiration of such credit; but no lien continues in force for a longer time than two years from the time work is completed by any agreement to give credit."—Statute.

The California Architect and Building Review.

VOLUME II.
NUMBER 6. } SAN FRANCISCO, JUNE, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect
— AND —
BUILDING REVIEW.
PUBLISHED MONTHLY BY THE
SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.
GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 *per annum, with extra cost of postage when sent to Foreign Countries.*

Entered at the Post Office at San Francisco, Cal., as second-class matter.

Its columns will be devoted to the best interests of all parties, whose interests are represented or involved in its general character, not excluding occasional articles calculated to please those who love channels of pure thought, and moral training. The higher, better, and *exactly truthful* in all matters, will be sought for. It will be free to refer to existing wrongs and abuses, in whatever direction they may appear. Its management will be uncontrolled by any impure influences or motives, and rise above all mean personalities. Its statements of price-lists, etc., etc., will be obtained from the most reliable sources, never bending to serve the special interests of any person or persons, but giving true and correct reports, for the information of all its readers. Its improvement in every department will receive constant attention, so that eventually it will compare with the very best of its kind now published. The special character of matters generally in this city and State may cause departures from the established methods and rules which control like publications in cities where understood practices and regulations prevail. But under all circumstances, honest convictions and purposes will control its management; and any reference made in its columns to established or inceptive interests on this coast—manufacturing, inventive, or any other—will be upon the grounds of merit in the thing noticed, *without any design or intent to* "PUFF"; *i. e.*, "praise with exaggeration."

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The Present Outlook.—Future Prospects.

From time to time we have stated in this journal the true and uninflated condition of affairs in this city and State, particularly in reference to building activities and prospects. Every possible care has been observed in securing correct and reliable information, and presenting our readers monthly with a *Building Intelligence Report*, more nearly correct and reliable than has appeared in any other journal published in San Francisco. We have on several occasions contradicted statements made in the daily papers, and in every instance such contradictions have been sustained by facts. During the months of December and January last, "everybody" entertained the impression that a "splendid trade" in the building line would be opened in San Francisco during the spring months, to be followed by a boom during the summer. But February, March, and April came and passed without yielding the anticipated and wished for results, and governed by the evidence of things around us, we gave our readers substantial and unimpeachable reports of what was being done; not in anything inflating or overrating, nor in aught undervaluing the facts as they appeared. This course will be continued, and our readers may rely upon receiving monthly, fair and reliable recitals of facts as they develop; with this understanding, that when business is dull, we shall not seek to find nor manufacture columns of statements for effect sake. It may be good policy to write up and publish glowing accounts of things around us, and by words make the "desert blossom as the rose," and swear that acorns grow on pine trees; but such efforts so directed never prove a fact, and we shall attempt no such thing. When times are prosperous or dull, as the case may be, it will be so stated, believing that an intelligent community prefer *correct* information.

At present it is our pleasure to state that matters generally look well in this city and State, and that the permanent prospects are good, and not for many years have they been more encouraging and gratifying upon this coast. We base the prediction that a considerable, if not emphatic boom in building is in store for San Francisco, to be developed within a reasonably short space of time, upon the fact that all classes are recovering from the severe depressions which have so long hung over the interests of this city and State, and every department of commerce, trade, and mechanical operations are doing well; while in many of the prominent lines, a greater business is being done than has ever been experienced in San Francisco in the same lines. Consequently, with good business in all directions, enrichment of the masses as well as of individuals must follow; and with this bettered and prosperous state of affairs, increase of building operations is sure to follow.

The immense structure ten stories high, commenced by the Messrs. Spreckles at the Portrero for the purpose of a sugar refinery, which, when completed, will be the largest sugar refinery in the world, will give employment to a very large number of workmen and laborers.

The Phelan Building on Market street is progressing reasonably rapid, the walls of basement being up to sill course, and the cast-iron columns, etc., of street fronts in place. The difficulties encountered by the owner in clearing the lot has retarded progress—one at least of the store tenants refusing to leave, and did not do so until many weeks were exhausted in restraining and ejectment proceedings.

From time to time for several years the statement has appeared in the daily papers, and otherwise circulated, that Mr. McCreary was about to clear the lot, N. W. corner of Pine and Davis streets, and erect a new building thereon. The same story was restated several months ago, at a time when, as stated to us by interested parties, nothing had been determined upon, nor any move made in reference to the commencement of a new building. Now, however, the matter has assumed practical shape, tenants notified to quit, plans preparing, and preliminary arrangements in progress. This building will have a frontage of 137½ feet on Pine street, and 137½ feet on Davis street, with cellar and four stories above sidewalk; a full report, with the names of the operating parties, will appear in our *Building Intelligence*.

Mr. Gibbs' brick structure, corner of Market and Main streets, is up to store level, and the cast-iron work for main story being set. In opposition to the "Crystal Palace" heretofore noticed, another covering several 50-vara lots is in contemplation by one of our wealthy citizens.

We have personally been consulted in reference to the improvement of a prominent corner lot in the central part of the city, upon which, subject to certain contingencies, it is contemplated to expend $250,000 in the erection of a building.

We have also an application from parties of unexceptional responsibilities for a building to cover an entire 50-vara lot or more, located within the bounds of Stockton street and Van Ness avenue, Bush and O'Farrell streets. A long lease at liberal rental will be entered into with anyone owning property within the limits defined, who will erect a suitable building, at an expense of $100,000 to $150,000, as the case may be. All these, with the many other improvements noticed in our building intelligence report, must engage a young army of mechanics and building operatives, and when under way, it may truthfully be claimed that a boom in building activities is being enjoyed.

To these may be added the soon to be commenced cable road on Valencia and Market streets, the extensive ferry slip improvements at the Oakland landing, the Montgomery avenue cable line extension—all of which still further illustrates what is in store for San Francisco. These various enterprises and improvements will call into circulation millions of dollars, and give aid and comport in ten thousand directions. The millions of gold exists, and the improvements referred to will operate as a means of transferring much of it from vaults and hiding places, into the pockets of the working classes, and producers of, and dealers in the various classes of materials required. As clouds and winds indicate the coming storm, so do the commencement of large operations which require material and labor assure of employment and comfort to the masses.

After Damages.

John Clifford, who, some sixteen months ago, became a conspicuous personage in connection with the new City Hall of San Francisco, as the architect appointed by our present city officials, is seeking damages in the courts of Chicago against certain parties in that city, who furnished the *San Francisco Chronicle*, in its tirade against him, with statements by no means complimentary to Clifford, either as an architect or reliable man. We shall await with interest the result of the trial, doubting whether recovery is possible under the circumstances. One thing is certain, the pressure brought to bear against Mr. Clifford was weighty and damaging; but if the case as set up by the *Chronicle* was a persecution not sustained by actual facts, it was a great wrong to the party attacked, and he should be entitled to redress. But all the facts surrounding Clifford's movements in San Francisco, was calculated to bring upon him the results which followed, and it will require strong evidence to change existing adverse opinions of him, both as a man and an architect. His freely expressed unappreciation of the members of the profession in this city, and his many unguarded and derogatory statements from office to office, each reflecting upon the abilities of the last one visited, and dealing in laudations upon the one present, soon became known, and brought upon him the contempt of a majority of the members of the profession in San Francisco, all of which was probably the result of what one of the defendants in the suit mentioned saw fit to designate as defective mentalism. One eastern journal has stated that he made the plans for a certain building etc., etc. This is an error, so far as we know, and we profess to be rightly informed. Clifford did not make the plans for any sort of a building while in San Francisco, but was, through his "sand lot" and Dennis Kearny connections, appointed by our present *sand-lot-elected* city officials, architect of the new City Hall, to fill the place made vacant by Mr. Hatherton's resignation, which he held for less than two months.

THE demand for bound volumes of this journal for 1880 has been such that we have had 500 additional copies bound, which we will send to any address at the reduced price of $2.00 per volume.

THE LEMON VERBENA.—The well-known lemon verbena is systematically gathered in Spain, where it is regarded as a fine stomachic and cordial, used in the form of a decoction. It is said that if it be used one need never suffer from flatulence, diarrhœa, or loss of appetite.

Specimen Correspondence.—A Clear Case of Dementia.

There appeared in the *Argonaut* of May 7th, what purported to be a letter from a Washington, D. C., correspondent to that journal; but whether from Washington, D. C., or the Stockton or Napa Lunatic Asylum, Cal., is not certain, for a person who would pen statements so at variance with facts, and so indiscriminate and unjust in representations, must have been influenced by the spirit of malice, or have reached a condition of mind, that whether writing from the snow-clad peaks of the Andes or Sierra Nevada, would as likely imagine himself roaming through the orange groves of Sicily, Los Angeles, or Florada, or walking the streets of China or Japan, as being seated in regions of perpetual snow. His hallucinations are so "horribly" amusing, that we reproduce that portion to which we specially refer. He signs himself "P.," and writes as follows:

"Of all the stupid, unimaginative, unenterprising, uneducated artists, it strikes me that San Francisco architects take the lead. It seems to me that the genius of architecture in California died with the old man Bugbee. If there is a really a handsome private residence that he did not plan, I am not advised of it. The insufferably plain house, with its hall and side rooms, its narrow staircases leading up from the front door, the inevitable bow window, the cheap and nasty scrollwork of the planing mill, all built upon a uniform model, is in dreadful contract with the beautiful, inexpensive, and varied houses that adorn the city of Washingington. (*Mem.*—If any architect advertise in the *Argonaut*, except him from this sweeping criticism. You may except Mr. Augustus Laver, if he does not advertise.) Yes, Washington is to be a beautiful city. A city for the residence of fashionable, wealthy, and cultured people, in which there will be no riots, no labor strikes, no uprisings. There are no manufactories, and there will be neither trade nor commerce to any great extent. Its citizens, both in private and official circles, will be loyal, peaceable, and law-abiding, through their interests. Sometime their will be a great university at Washington. There should be; and half the various lesser schools that are dignified now with the title of college and university, should be abandoned, and among them those of California, Oregon, and Nevada, in the COMBINED FACULTY OF WHICH THERE ARE NOT FIVE REALLY LEARNED AND SCHOLARLY MEN."

We have copied the foregoing as a singular specimen of reckless, untruthful, and slanderous journalism. If San Francisco architects *are not*, the writer "P." IS "imaginative"—that is, in the concoction of statements entirely at variance with facts. "Educated" in the art of grossly misrepresenting an entire profession, many of whom would refuse to exchange their "stupidity" for the KIND of education displayed by this Washington, D. C., lunatic, who has certainly exhibited the spirit of "enterprise" with a vengeance, by grouping together some fifty or more persons, engaged in the practice of an honorable profession, only a fractional number, if any of whom are personally known to him, to enable him to understand, and intelligently state his opinion as to their status—*stupidity* considered; and denouncing them all in terms of unqualified severity. And to complete his "enterprise" and "imaginativeness," he enters the sacred confines of the tomb, and invokes the spirit of the dead; not from good and worthy motives, but for the purpose of defaming and insulting the living, many of whom were highly esteemed by "the old man Bugbee" while living, as his professional equals. While the late Mr. Bugbee was with us, he planned many very fine residences, and enjoyed an honorable reputation in the profession, but no intelligent man, fairly informed in reference to the "private residences in San Francisco," enjoying any regard for truthfulness, and honest representations, will indorse the mean insinuation of "P." There have been scores of "really handsome private residences" built in San Francisco, both before and since Mr. B.'s death, which he did not plan; and "P." simply exposes his wanton ignorance of existing facts, or a total abandonment of all care to be correct in his statements.

"Except him from this *sweeping* criticism" is a specie of "taffy" which no sensible man will relish, and should be received by those who advertise in the *Argonaut*—"if any"—as a play upon their good sense; for it is only a covering to the other term—"stupid." By the same rule, if all the architects of San Francisco, who are now a set of ignoramuses, would advertise in the journal named, they would at once relieve themselves of all "stupidity," want of "enterprise," lack of "imagination," etc., and by so spending a few dollars monthly, might die in peace, assured that after-reference to them would be as "the genius of architecture."

Instead of the residences in San Francisco being "all built upon a uniform model," the fact is notorious, that there is no city upon the face of the earth where greater diversity of styles of architecture is displayed.

"Bow windows" are almost universal, and we hold it as an evidence of good sense on the part of the *many thousands of owners* who would not build a house without them. They are invaluable adjuncts, furnishing increased conveniences, comfort, sunlight, and protection to health. But uniformity is not the rule, except in the "real estate houses" built for speculative sale, and the lesser grade of residences, where economics are enforced by limitedness of means. But this fact does not prevail, and such is the experience of architects generally, that almost every owner when contemplating a new building wants "something new" and different from everything previously built; and in the better class of residence, while conformities may exist in certain respects, the desire for differences, improvement, and increased conveniences is prominent; and in hundreds of cases, owners have refused to adopt certain features simply and upon no other grounds than that the same thing exists in some other house. Consequently architects in San Francisco are taxed to the full extent of their abilities—beg pardon—their "stupidity," to devise and create new things to meet the deversified requirements.

It would, however, require too much space in our columns to notice all the *outrageous* suggestions presented in the quotation from "P.;" his slurs upon the pucational institutions of the coast, in which there are not—so he says—*five really learned and scholarly men*, which virtually means there are none; thus placing the professors of learning upon this entire coast on a par with the "stupid" set practicing architecture in San Francisco.

His language in reference to Washington City, D. C., being or becoming the nursery of the "fashionable, wealthy and cultured," where "labor strikes, riot and uprisings" will not occur, is an insult to the industrious, progressive, developing and sustaining portion of the citizens of the United States; and the spirit and disposition that prompt such utterances, is of the class which is working dethronment and death to the crowned heads of Europe, and vitalizing the cries of the masses against the brazen assumptions of the few. The capital city of our country is no more the special home by right, of that class who have become rich, either through the channels of toil and labor, or dishonesties of various forms, as the case may be, or whose official life is sustained by the gold and silver drawn from "trade and commerce," than the heritage of the humbler classes. And the man whose inflated imagination carries him beyond the god-defined limit, that he is more than a "worm of the dust" wrigling out life's narrow span, simply awaiting that call which will pass his mortality to a decaying mass of "Mother Earth," fails to comprehend his being, or the inevitable of his creation.

Finally, returning to the main issue, the comparison of the architecture of San Francisco, a city of but little over thirty years, with all of its residence buildings built of wood, where wealth and fortune has been more the incentive and aim of its inhabitants than magnificent structures, with one of the oldest cities of the Union, where hundreds of millions have been expended in the erection of public edifices, all of which are of brick, stone, etc., is unequal and unfair. Particularly in view of the fact, that but very few opportunities have offered, giving liberal exercise of skill to the architect of San Francisco, and none where restraints *in some form* have not been interposed, even in the most costly edifices so far erected. While in the lesser line of "first-class" houses, almost *severe* restrictions are generally defined; and in the whole range of moderate cost residences down to the humble cottage, limits in cost are prescribed, which enforce economies by the architect engaged, at the sacrifice of better architectural delineations. It is the common experience of every architect on this coast to meet the issue of producing buildings for a stated sum, which is reasonably worth from 10 to 40 per cent. more; and the whole tendency has been, and is, to demoralize the science by limitations in costs; and "P." to the contrary, notwithstanding every thing considered, the architecture of San Francisco, in thousands of cases, is not only good, but really elegant; and would be so considered if erected in Washington City, D. C., if frame buildings were permitted within its limits. "P." tacitly admits—and such is the fact—that there are some splendid brick edifices in this city, by confining his "sweeping criticisms" to residence buildings. That there are in this city many fine specimens of architecture, both in design and construction, will not be disputed by reasonable and unprejudiced parties qualified to determine their merits. Difference of opinions there may be as to styles and general appearances; some admiring as beautiful, that which to others may not be acceptable. This, however, is a condition common to the architecture of every city upon the face of the globe; and while we have diversities of styles in our brick edifices, there exists also the indisputable fact, not controverted oven by the brilliant "P." of the *Argonaut*, that taste, judgment, and architectural skill has been exercised in their designing and construction; and that too by the very men who have been denominated by the man in Washington, D. C., as "stupids" of the first water.

However "stupid" the architects of San Francisco may be, there is in them enough of good sense not to value such slanderous scurrility as worth the least consideration, and we should not have noticed it in these columns, only for the purpose of refuting a gross misrepresentation which should never have appeared in a San Francisco journal. It certainly misrepresents facts to the outside world, and so far is injurious to the best interests of this city.

Adulterated Linseed Oil.

BY ALFRED H. MASON, F. C. S.

A few weeks ago I was consulted by a friend, as to a method for the detection of a known adulterant in boiled linseed oil. My friend had previously taken the opinion of five well-known professional chemists, and as their results were somewhat divergent, it occurred to him that I, perhaps, might know of, or could ascertain, some project for its certain detection; or, as a buyer of the article for export, I might have noticed the adulteration.

It has been definitely ascertained that about two hundred and fifty tons of this adulterated oil have been shipped from Liverpool to foreign ports, and as the adulterated article is unfit for the purposes to which boiled linseed oil is applied, it is rather a serious matter, and a fraud of this nature affects the commercial reputation of our city. I take it, therefore, that the nature of the fraud having been detected, and being in possession of the facts as to the method of procedure, it is a duty to make these facts public, and perhaps this Association will be doing a good service to our merchants by making them cognizant of the risks they incur.

The adulterant employed was mineral oil, sold as neutral oil. This oil has a specific gravity of 0.865, and it flashes at 280 deg. Fahr. Genuine boiled linseed oil does not flash until heated to 540 deg. Fahr.; the adulterated oil flashed at 330 deg. Fahr.

The specific gravity of genuine boiled linseed oil is 0.940; of the adulterated sample, 0.9146.

It has been ascertained that in the manufacture of this adulterated oil, about thirty per cent. of neutral oil is mixed with the linseed oil previous to boiling.

To determine the adulteration, Thomson's method was employed. The sample was boiled with an alcoholic solution of caustic soda, by which the vegetable oil was converted into soap. This is then mixed with sand, and treated and washed with pure petroleum spirit, distilled at a temperature under 190 deg. Fahr., which dissolves out the mineral oil, leaving the soap insoluble. The spirit is then distilled off from the spirit solution of mineral oil, at a temperature not exceeding 220 deg. Fahr., and the residue of the mineral oil weighed and calculated on the weight of the original mixed oil taken.

By this method twenty-four per cent., by weight, of mineral oil has been abstracted from the sample—specific gravity 0.8720—the sample itself being 0.9146—far below that which genuine boiled linseed oil ought to be.—*Paper read before the Liverpool Chemists' Association.*

ARCHITECTURAL COMPETITIONS.

In resuming this subject, perhaps it would be well to give our readers the opinions of some leading architects upon both sides of the question. Through the courtesy of one of our most prominent professional brethren, we have been able to collect a large fund of information upon the subject-matter of these articles, and it is with pleasure we place before our readers the opinions of men high in the profession both in the Old and the New World. One of London's prominent architects writes:

"I quite agree with all arguments brought forward against competitions. There is one, however, which might be introduced in their favor; a weak one perhaps, but one not altogether ignored by the younger members of the profession. I have heard it often said, that were it not for the opportunities offered by competitions, young beginners without name or connection would not be able to make their talents known. Competition has often done much to give advanced pupils and clerks a start in life, and it is to these, and to advance, or at least encourage their endeavors and interests, that competition should be resigned by those, who, from age, reputation, and social position, are able to make their way without its undignified and uncertain help.

Another London architect writes:

"I have never once engaged in any competition, but from what has come under my notice, I have reason to know that competitions, as now conducted, are unworthy of any honorable profession."

A prominent architect in St. Louis sends us the following:

"I am glad to see your journal, as a representative of the profession on the Pacific coast, take up the subject of Architectural Competitions. You courted opinions from your brother professionals, and I will say, I hail with satisfaction any steps that may be taken to relieve our profession from the liability of evils caused by competitions. 'The system is a degradation to our art, and in no other profession could it have found existence.' I think it is a mistake to urge in its defense that latent talent is developed. I have never known of an instance of success, unless private interest in some shape has been brought to bear—even admitting this argument, the benefit is immensely over-balanced by the mischief. I will be pleased to read the opinions of those architects in your city, whose veiws do not coincide with my own. I consider that no fellow or associate should enter into a competition on any terms whatever, and if you succeed in inducing all the members of the institute to agree in rejecting all the blandishments exercised by crafty composers of advertisements which fill our professional papers, and to resolve that in future they will not supply designs, except on the usual professional terms, you will deserve the best thanks of all who are anxious to give architecture and architects their proper place, and raise them in public esteem."

Another architect writes:

"I shall be pleased to give my best support to the carrying out of your proposition for making it incumbent upon Fellows of the Institute to discontinue engaging in any open competition, or in limited competitions, where substantial honorariums are not offered to each competitor. It may be that at first a pecuniary loss would result to some of us from the adoption of such a resolution, but there can be no doubt you are right in saying that, when our determination became publicly known, committees would hesitate before advertising for designs, and the ultimate benefit to the profession would be incalculable."

A prominent architect writes:

"I sincerely hope you will be successful in your attempts to amend the disgraceful system of competitions. I have had a fair share of success, but I also have been a heavy loser of time and money, sometimes under circumstances of a painful nature, on account of the ignorance and unfairness of committees, who settle in one hour, what, if competent, would take them a week. I should gladly sign a document never to compete again, if the Fellows of the Institute take the matter up in any feasible manner that may be suggested."

A London architect writes:

"I have for many years given up joining in public competitions, but found myself compelled occasionally to accept an invitation to submit a design in private competition. With regard to open competitions, in which I had my fair share of success in early life, the works have never been carried into execution with results wholly satisfactory to me, the reasons generally being that the unsuccessful competitors are on the alert to find some opportunity of damaging the position of the successful architect, and it is almost impossible to steer clear though the work.

We have given extracts from several letters, more or less condemning the system of competitions. We have several letters on hand from those who have been benefited by the system, and we propose to give them in detail, as the information they contain is both interesting and suggestive, and which cannot fail to be useful in leading to an impartial review of the whole subject.

A "successful architect" writes:

"I am largely indebted to competition for what success I have achieved, and, but for them, should not have had a chance of obtaining all my larger works. The great advantage of competition is, that it gives the younger members the profession a chance, and *it also has an educating influence over the unsuccessful*. I believe I have never gone in for a competition without winning, or learning a great deal. I feel sure that they have had a very great influence in raising the standard of proficiency in our profession."

Extract from a "common-sense" letter:

"I think it quite hopeless to secure any combined action on the part of our profession—in reference to the important subject to which you call attention—nor do I agree that total abolition of competitions is a thing to be desired."

A prominent architect, who has engaged largely in competitions, writes:

"You appear to hope that the competition system may eventually be discontinued. I hope not. And if the three hundred and fifty Fellows, and all in future to be elected, are expected to sign a declaration that they will never compete unless each competitor is paid for his drawings, (I think the signatures will be very few) they would cut themselves off from all competitions. Many architects in good position have earned their fame and practice entirely through competition. * * * The mistake is not in competing, but in the manner in which so many competitions are conducted. * * * The difficulty, of course, is in drawing up the rules by which competitions are conducted. At present, a competition means that each architect must send in a large set of drawings, perspectives, etc., all at great cost of time, and the successful man finds that he must then set to work to draw out fresh plans, for the competition sets are seldom used. The only fair way is to have nothing but sketch plans, to small scale, just to show the general arrangement, and sufficient elevations and perspective to give the outline and idea of the exterior, in fact. If I were asked by a committee to arrange a competition, say for a church, for instance, I should ask half a dozen, or any number of architects, to meet at a certain time, and let them, in an hour, give a sketch or plan, the architects *own* designing would be obtained quite sufficient for selection, and it would not be a matter of number of clerks, and longest purse. At present, I think very few architects, who have sufficient work of their own, compete, unless specially requested to do so; and any rules that may be drawn up will be almost entirely for those who compete, because they have little to do, and leave it off as soon as it is not longer necessary. When I commenced practice, years ago, I had little to do excepting compete. I was successful for a church and schools, but the chairman who had a nephew in the competition, was determined I should not carry out the work, and paid me two and one-half per cent. out of his own pocket. His relative then did the job. I never compete now, unless specially asked to, and then very seldom. In the last, for a church, I refused to compete unless the committee agreed to *sketch plans on one sheet of paper;* this they did, and I am carrying out the work satisfactorily."

A young architect writes:

"As I started in practice, unknown, in a strange town, I cannot tell how I should have procured a livelihood without the chance of gaining such works as I have in competition; for beside the actual benefit derived from the work so obtained, the fact that I had been intrusted with works of importance, secured confidence in my abilities, and private works were intrusted to me." * * *

We have now placed before our readers the opinions of the more favored of our profession, who, having good connections, or succeeding to established practices, have been able to maintain a high position without resorting to competition. We have also given the evidence of a few fortunate men, who, commencing without friends or interest of any sort, have succeeded by their own talent in raising themselves to honorable positions, through the medium of competition. There is, however, a third class, who must not be forgotten, and in our next we will call attention especially to a class that has been the means of causing more annoyance to *professional architects*, and been the means of bringing the profession into disrepute, so much so, that we will coin a word and call them "*heart-burning draughtsmen.*"

[TO BE CONTINUED.]

Portland Cement.

Forty years ago Portland cement was practically unknown. Previous to that time Roman cement was employed in almost every building of importance. The introduction of the new cement was met on all sides with great opposition, but its eminent hydraulic properties and great strength eventually asserted themselves, until at the present time, Portland cement is synonymous with strength. But, like all manufactures which assume large proportions, there are unfortunately both good and inferior cements to be met with.

The recognized tests for Portland cement are its weight per striked bushel, the fineness to which it is ground, its color, and its tensile strength. With the exception of the tensile strength, which is an absolute test, these tests are really only problematical, for it is evidently possible to obtain a material that, in weight, color, and fineness, may approximate to the standard required in Portland cement, and yet not be cement. Hence, a bad or damaged cement may possess all these requisite qualities and yet fail in the crucial test of strength. It is also possible to have a cement that is of the required strength, but would yet fail to give the results expected of it when made into concrete or mortar.

Concrete or mortar being a combination of aggregates, which are united into a compact mass by means of the cement, it follows that the cement should possess strength; that it should be so finely ground as to thoroughly intermingle with and separate all the aggregates used, thus cementitiously uniting each particle; that it should set fairly quickly, and that it should neither expand nor contract during setting.

Without describing the manufacture of cement, which is carried out in various ways, according to the nature of the raw materials used, it may be considered a combination of carbonate of lime, silica, and alumina in certain proportions. These ingredients are obtained in different localities in various forms. Thus, on the Thames, the white chalk, which is nearly a pure carbonate of lime, is used in connection with Medway mud, which contains the silica and alumina. In the north of France, in the neighborhood of Neufchatel and Devres, a natural cement-earth is found, generally at the foot of the chalk hills. This material, which much resembles gray chalk in appearance, contains in many instances the exact proportions of lime, silica, and alumina for the production for a high-class cement. At Madras a cement is made from lime produced from sea shells, used in combination with a river mud. At Rio de Janeiro, coral lime and a river mud are used. From these facts it will be seen, that wherever carbonate of lime, silica, and alumina are meet with, in fairly easy convertible form, there Portland cement can be made. The process by which the cement is manufactured may be briefly divided into three stages: The thoroughly mechanical combination of the raw materials, their calcination, and the reduction of the clinker by grinding to the Portland cement of commerce.

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Specimen Correspondence.—A Clear Case of Dementia.

There appeared in the *Argonaut* of May 7th, what purported to be a letter from a Washington, D. C., correspondent to that journal; but whether from Washington, D. C., or the Stockton or Napa Lunatic Asylum, Cal., is not certain, for a person who would pen statements so at variance with facts, and so indiscriminate and unjust in representations, must have been influenced by the spirit of malice, or have reached a condition of mind, that whether writing from the snow-clad peaks of the Andes or Sierra Nevada, would as likely imagine himself roaming through the orange groves of Sicily, Los Angeles, or Florada, or walking the streets of China or Japan, as being seated in regions of perpetual snow. His hallucinations are so "horribly" amusing, that we reproduce that portion to which we specially refer. He signs himself "P.," and writes as follows:

"Of all the stupid, unimaginative, unenterprising, uneducated artists, it strikes me that San Francisco architects take the lead. It seems to me that the genius of architecture in California died with the old man Bugbee. If there is a really a handsome private residence that he did not plan, I am not advised of it. The insufferably plain house, with its hall and side rooms, its narrow staircases leading up from the front door, the inevitable bow window, the cheap and nasty scrollwork of the planing mill, all built upon a uniform model, is in dreadful contract with the beautiful, inexpensive, and varied houses that adorn the city of Washington. (*Mem.*—If any architect advertise in the *Argonaut*, except him from this sweeping criticism. You may except Mr. Augustus Laver, if he does not advertise.) Yes, Washington is to be a beautiful city. A city for the residence of fashionable, wealthy, and cultured people, in which there will be no riots, no labor strikes, no uprisings. There are no manufactories, and there will be neither trade nor commerce to any great extent. Its citizens, both in private and official circles, will be loyal, peaceable, and law-abiding, through their interests. Sometime their will be a great university at Washington. There should be; and half the various lesser schools that are dignified now with the title of college and university, should be abandoned, and among them those of California, Oregon, and Nevada, in the COMBINED FACULTY OF WHICH THERE ARE NOT FIVE REALLY LEARNED AND SCHOLARLY MEN."

We have copied the foregoing as a singular specimen of reckless, untruthful, and slanderous journalism. If San Francisco architects *are not*, the writer "P." IS "imaginative"—that is, in the concoction of statements entirely at variance with facts. "Educated" in the art of grossly misrepresenting an entire profession, many of whom would refuse to exchange their "stupidity" for the KIND of education displayed by this Washington, D. C., lunatic, who has certainly exhibited the spirit of "enterprise" with a vengeance, by grouping together some fifty or more persons, engaged in the practice of an honorable profession, only a fractional number, if any of whom are personally known to him, to enable him to understand, and intelligently state his opinion as to their status—*stupidity* considered; and denouncing them all in terms of unqualified severity. And to complete his "enterprise" and "imaginativeness," he enters the sacred confines of the tomb, and invokes the spirit of the dead; not from good and worthy motives, but for the purpose of defaming and insulting the living, many of whom were highly esteemed by "the old man Bugbee" while living, as his professional equals. While the late Mr. Bugbee was with us, he planned many very fine residences, and enjoyed an honorable reputation in the profession, but no intelligent man, fairly informed in reference to the "private residences in San Francisco," enjoying any regard for truthfulness, and honest representations, will indorse the mean insinuation of "P." There have been scores of "really handsome private residences" built in San Francisco, both before and since Mr. B.'s death, which he did not plan; and "P." simply exposes his wanton ignorance of existing facts, or a total abandonment of all care to be correct in his statements.

"Except him from this *sweeping* criticism" is a specie of "taffy" which no sensible man will relish, and should be received by those who advertise in the *Argonaut*—"if any"—as a play upon their good sense; for it is only a covering to the other term—"stupid." By the same rule, if all the architects of San Francisco, who are now a set of ignoramuses, would advertise in the journal named, they would at once relieve themselves of all "stupidity," want of "enterprise," lack of "imagination," etc., and by so spending a few dollars monthly, might die in peace, assured that after-reference to them would be as "the genius of architecture."

Instead of the residences in San Francisco being "all built upon a uniform model," the fact is notorious, that there is no city upon the face of the earth where greater diversity of styles of architecture is displayed.

"Bow windows" are almost universal, and we hold it as an evidence of good sense on the part of the *many thousands of owners* who would not build a house without them. They are invaluable adjuncts, furnishing increased conveniences, comfort, sunlight, and protection to health. But uniformity is not the rule, except in the "real estate houses" built for speculative sale, and the lesser grade of residences, where economics are enforced by limitedness of means. But this fact does not prevail, and such is the experience of architects generally, that almost every owner when contemplating a new building wants "something new" and different from everything previously built; and in the better class of residence, while conformities may exist in certain respects, the desire for differences, improvement, and increased conveniences is prominent; and in hundreds of cases, owners have refused to adopt certain features simply and upon no other grounds than that the same thing exists in some other house. Consequently architects in San Francisco are taxed to the full extent of their abilities—beg pardon—their "stupidity," to device and create new things to meet the deversified requirements.

It would, however, require too much space in our columns to notice all the *outrageous* suggestions presented in the quotation from "P.;" his slurs upon the pucational institutions of the coast, in which there are not—so he says—*five really learned and scholarly men*, which virtually means there are none; thus placing the professors of learning upon this entire coast on a par with the "stupid" set practicing architecture in San Francisco.

His language in reference to Washington City, D. C., being or becoming the nursery of the "fashionable, wealthy and cultured," where "labor strikes, riot and uprisings" will not occur, is an insult to the industrious, progressive, developing and sustaining portion of the citizens of the United States; and the spirit and disposition that prompt such utterances, is of the class which is working dethronment and death to the crowned heads of Europe, and vitalizing the cries of the masses against the brazen assumptions of the few. The capital city of our country is no more the special home by right, of that class who have become rich, either through the channels of toil and labor, or dishonesties of various forms, as the case may be, or whose official life is sustained by the gold and silver drawn from "trade and commerce," than the heritage of the humbler classes. And the man whose inflated imagination carries him beyond the god-defined limit, that he is more than a "worm of the dust" wriggling out life's narrow span, simply awaiting that call which will pass his mortality to a decaying mass of "Mother Earth," fails to comprehend his being, or the inevitable of his creation.

Finally, returning to the main issue, the comparison of the architecture of San Francisco, a city of but little over thirty years, with all of its residence buildings built of wood, where wealth and fortune has been more the incentive and aim of its inhabitants than magnificent structures, with one of the oldest cities of the Union, where hundreds of millions have been expended in the erection of public edifices, all of which are of brick, stone, etc., is unequal and unfair. Particularly in view of the fact, that but very few opportunities have offered, giving liberal exercise of skill to the architect of San Francisco, and none where restraints *in some form* have not been interposed, even in the most costly edifices so far erected. While in the lesser line of "first-class" houses, almost *severe* restrictions are generally defined; and in the whole range of moderate cost residences down to the humble cottage, limits in cost are prescribed, which enforce economies by the architect engaged, at the sacrifice of better architectural delineations. It is the common experience of every architect on this coast to meet the issue of producing buildings for a stated sum, which is reasonably worth from 10 to 40 per cent. more; and the whole tendency has been, and is, to demoralize the science by limitations in costs; and "P." to the contrary, notwithstanding every thing considered, the architecture of San Francisco, in thousands of cases, is not only good, but really elegant; and would be so considered if erected in Washington City, D. C., if frame buildings were permitted within its limits. "P." tacitly admits—and such is the fact—that there are some splendid brick edifices in this city, by confining his "sweeping criticisms" to residence buildings. That there are in this city many fine specimens of architecture, both in design and construction, will not be disputed by reasonable and unprejudiced parties qualified to determine their merits. Difference of opinions there may be as to styles and general appearances; some admiring as beautiful, that which to others may not be acceptable. This, however, is a condition common to the architecture of every city upon the face of the globe; and while we have diversities of styles in our brick edifices, there exists also the indisputable fact, not controverted even by the brilliant "P." of the *Argonaut*, that taste, judgment, and architectural skill has been exercised in their designing and construction; and that too by the very men who have been denominated by the man in Washington, D. C., as "stupids" of the first water.

However "stupid" the architects of San Francisco may be, there is in them enough of good sense not to value such slanderous scurrility as worth the least consideration, and we should not have noticed it in these columns, only for the purpose of refuting a gross misrepresentation which should never have appeared in a San Francisco journal. It certainly misrepresents facts to the outside world, and so far is injurious to the best interests of this city.

Adulterated Linseed Oil.

BY ALFRED H. MASON, F. C. S.

A few weeks ago I was consulted by a friend, as to a method for the detection of a known adulterant in boiled linseed oil. My friend had previously taken the opinion of five well-known professional chemists, and as their results were somewhat divergent, it occurred to him that I, perhaps, might know of, or could ascertain, some project for its certain detection; or, as a buyer of the article for export, I might have noticed the adulteration.

It has been definitely ascertained that about two hundred and fifty tons of this adulterated oil have been shipped from Liverpool to foreign ports, and as the adulterated article is unfit for the purposes to which boiled linseed oil is applied, it is rather a serious matter, and a fraud of this nature affects the commercial reputation of our city. I take it, therefore, that the nature of the fraud having been detected, and being in possession of the facts as to the method of procedure, it is a duty to make these facts public, and perhaps this Association will be doing a good service to our merchants by making them cognizant of the risks they incur.

The adulterant employed was mineral oil, sold as neutral oil. This oil has a specific gravity of 0.865, and it flashes at 280 deg. Fahr. Genuine boiled linseed oil does not flash until heated to 540 deg. Fahr.; the adulterated oil flashed at 330 deg. Fahr.

The specific gravity of genuine boiled linseed oil is 0.940; of the adulterated sample, 0.9146.

It has been ascertained that in the manufacture of this adulterated oil, about thirty per cent. of neutral oil is mixed with the linseed oil previous to boiling.

To determine the adulteration, Thomson's method was employed. The sample was boiled with an alcoholic solution of caustic soda, by which the vegetable oil was converted into soap. This is then mixed with sand, and treated and washed with pure petroleum spirit, distilled at a temperature under 190 deg. Fahr., which dissolves out the mineral oil, leaving the soap insoluble. The spirit is then distilled off from the spirit solution of mineral oil, at a temperature not exceeding 220 deg. Fahr., and the residue of the mineral oil weighed and calculated on the weight of the original mixed oil taken.

By this method twenty-four per cent., by weight, of mineral oil has been abstracted from the sample—specific gravity 0.8720—the sample itself being 0.9146—far below that which genuine boiled linseed oil ought to be.—*Paper read before the Liverpool Chemists' Association.*

ARCHITECTURAL COMPETITIONS.

In resuming this subject, perhaps it would be well to give our readers the opinions of some leading architects upon both sides of the question. Through the courtesy of one of our most prominent professional brethren, we have been able to collect a large fund of information upon the subject-matter of these articles, and it is with pleasure we place before our readers the opinions of men high in the profession both in the Old and the New World. One of London's prominent architects writes:

"I quite agree with all arguments brought forward against competitions. There is one, however, which might be introduced in their favor; a weak one perhaps, but one not altogether ignored by the younger members of the profession. I have heard it often said, that were it not for the opportunities offered by competitions, young beginners without name or connection would not be able to make their talents known. Competition has often done much to give advanced pupils and clerks a start in life, and it is to these, and to advance, or at least encourage their endeavors and interests, that competition should be resigned by those, who, from age, reputation, and social position, are able to make their way without its undignified and uncertain help.

Another London architect writes:

"I have never once engaged in any competition, but from what has come under my notice, I have reason to know that competitions, as now conducted, are unworthy of any honorable profession."

A prominent architect in St. Louis sends us the following:

"I am glad to see your journal, as a representative of the profession on the Pacific coast, take up the subject of Architectural Competitions. You courted opinions from your brother professionals, and I will say, I hail with satisfaction any steps that may be taken to relieve our profession from the liability of evils caused by competitions. 'The system is a degradation to our art, and in no other profession could it have found existence.' I think it is a mistake to urge in its defense that latent talent is developed. I have never known of an instance of success, unless private interest in some shape has been brought to bear—even admitting this argument, the benefit is immensely over-balanced by the mischief. I will be pleased to read the opinions of those architects in your city, whose views do not coincide with my own. I consider that no fellow or associate should enter into a competition on any terms whatever, and if you succeed in inducing all the members of the institute to agree in rejecting all the blandishments exercised by crafty composers of advertisements which fill our professional papers, and to resolve that in future they will not supply designs, except on the usual professional terms, you will deserve the best thanks of all who are anxious to give architecture and architects their proper place, and raise them in public esteem."

Another architect writes:

"I shall be pleased to give my best support to the carrying out of your proposition for making it incumbent upon Fellows of the Institute to discontinue engaging in any open competition, or in limited competitions, where substantial honorariums are not offered to each competitor. It may be that at first a pecuniary loss would result to some of us from the adoption of such a resolution, but there can be no doubt you are right in saying that, when our determination became publicly known, committees would hesitate before advertising for designs, and the ultimate benefit to the profession would be incalculable."

A prominent architect writes:

"I sincerely hope you will be successful in your attempts to amend the disgraceful system of competitions. I have had a fair share of success, but I also have been a heavy loser of time and money, sometimes under circumstances of a painful nature, on account of the ignorance and unfairness of committees, who settle in one hour, what, if competent, would take them a week. I should gladly sign a document never to compete again, if the Fellows of the Institute take the matter up in any feasible manner that may be suggested."

A London architect writes:

"I have for many years given up joining in public competitions, but found myself compelled occasionally to accept an invitation to submit a design in private competition. With regard to open competitions, in which I had my fair share of success in early life, the works have never been carried into execution with results wholly satisfactory to me, the reasons generally being that the unsuccessful competitors are on the alert to find some opportunity of damaging the position of the successful architect, and it is almost impossible to steer clear though the work.

We have given extracts from several letters, more or less condemning the system of competitions. We have several letters on hand from those who have been benefited by the system, and we propose to give them in detail, as the information they contain is both interesting and suggestive, and which cannot fail to be useful in leading to an impartial review of the whole subject.

A "successful architect" writes:

"I am largely indebted to competition for what success I have achieved, and, but for them, should not have had a chance of obtaining all my larger works. The great advantage of competition is, that it gives the younger members the profession a chance, and *it also has an educating influence over the unsuccessful*. I believe I have never gone in for a competition without winning, or learning a great deal. I feel sure that they have had a very great influence in raising the standard of proficiency in our profession."

Extract from a "common-sense" letter:

"I think it quite hopeless to secure any combined action on the part of our profession—in reference to the important subject to which you call attention—nor do I agree that total abolition of competitions is a thing to be desired."

A prominent architect, who has engaged largely in competitions, writes:

"You appear to hope that the competition system may eventually be discontinued. I hope not. And if the three hundred and fifty Fellows, and all in future to be elected, are expected to sign a declaration that they will never compete unless each competitor is paid for his drawings, (I think the signatures will be very few) they would out themselves off from all competitions. Many architects in good position have earned their fame and practice entirely through competition. * * * The mistake is not in competing, but in the manner in which so many competitions are conducted. * * * The difficulty, of course, is in drawing up the rules by which competitions are conducted. At present, a competition means that each architect must send in a large set of drawings, perspectives, etc., all at great cost of time, and the successful man finds that he must then set to work to draw out fresh plans, for the competition sets are seldom used. The only fair way is to have nothing but sketch plans, to small scale, just to show the general arrangement, and sufficient elevations and perspective to give the outline and idea of the exterior, in fact. If I were asked by a committee to arrange a competition, say for a church, for instance, I should ask half a dozen, or any number of architects, to meet at a certain time, and let them, in an hour, give a sketch or plan, the architects *own* designing would be obtained quite sufficient for selection, and it would not be a matter of number of clerks, and longest purse. At present, I think very few architects, who have sufficient work of their own, compete, unless specially requested to do so; and any rules that may be drawn up will be almost entirely for those who compete, because they have little to do, and leave it off as soon as it is not longer necessary. When I commenced practice, years ago, I had little to do excepting compete. I was successful for a church and schools, but the chairman who had a nephew in the competition, was determined I should not carry out the work, and paid me two and one-half per cent. out of his own pocket. His relative then did the job. I never compete now, unless specially asked to, and then very seldom. In the last, for a church, I refused to compete unless the committee agreed to *sketch plans on one sheet of paper;* this they did, and I am carrying out the work satisfactorily."

A young architect writes:

"As I started in practice, unknown, in a strange town, I cannot tell how I should have procured a livelihood without the chance of gaining such works as I have in competition; for beside the actual benefit derived from the work so obtained, the fact that I had been intrusted with works of importance, secured confidence in my abilities, and private works were intrusted to me." * * *

We have now placed before our readers the opinions of the more favored of our profession, who, having good connections, or succeeding to established practices, have been able to maintain a high position without resorting to competition. We have also given the evidence of a few fortunate men, who, commencing without friends or interest of any sort, have succeeded by their own talent in raising themselves to honorable positions, through the medium of competition. There is, however, a third class, who must not be forgotten, and in our next we will call attention especially to a class that has been the means of causing more annoyance to *professional architects*, and been the means of bringing the profession into disrepute, so much so, that we will coin a word and call them "*heart-burning draughtsmen.*"

[TO BE CONTINUED.]

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able to give a reliable opinion as to the suitability of a cement to the work for which it is intended, by reference only to the problematical tests.

In using cement, as with everything else of the kind, the less the quantity of water used the better the result. The reason is plain: the water has to be evaporated in course of time, and that which is so evaporated must necessarily leave a vacuum behind (filled with air, of course); therefore, in plain language, the more water there is put in, the more water there is to evaporate out, and the more porous is the cement.

We would like to hear from such of our readers as have made any practical researches in regard to the values of different cements. One will think of what another will not, and seeing that cement is coming more and more into use, it is extremely important that we should thoroughly understand its qualities. There is one respect in which cement is being extensively introduced, which ought to receive the careful considerations of architects. We refer to fire-proof floors. We find iron joists placed at certain intervals and cement slabs, whether flat slabs or so-called arched slabs; and it is desirable that we should understand the exact behavior that is to be expected from such slabs.

Number Eight of "Copyrighted."

As the respective numbers of "The Series" have appeared, we have,—solely from a sense of right and duty, criticised each fairly upon its merits, or rather its *de*merits, and have not given expression to a single word not honestly believed and fully sustained by incontrovertible facts. And we speak understandingly when we say, that the views expressed in our several reviews have met the approval of every architect upon the Pacific coast, not personally inimical to us, or who, for special reasons and purposes, are disposed to excuse and favor a transparent error. And no candid and impartial man, capable of determining the merits of the issue, has or will undertake to dispute or controvert the views and statements expressed in this journal, in reference to the subject matter involved in this present writing.

The proprietors of the journal in publishing "the series" of errors, will, of course, naturally seek to defend and sustain their "enterprise," more, doubtless, from a determination to make a success of it, than a set intention to misrepresent and mislead. Consequently, all propositions, facts, and statements, not in harmony with and calculated to favor their pet project, are rejected. Opposing facts, however forcible and conclusive, bear but little weight with them in the issue. Of course, this is the common rule in all disputes and controversies. The side most, or perchance altogether in error, (as in this case) will contend and battle as earnestly and persistently in sustainment and perpetuation of such error, as will the opposite, with all the advantages of truth and correctness to their support. And many bad things, both public and private, injurious to all concerned, are vitalised and enforced through and by persistent and determined efforts on the part of those who advocate them. Sometimes for purposes base and dishonest, or from motives of personal ambitions, and the desire to be successful, at whatever sacrifice of truth and right may be necessary to secure coveted results. "*To win*," rather than "*to be right*," is the ambition and motto with many; and the fact that the managers of this "copyrighting" measure have been informed by leading architects of this city, as well as by this journal, that they were prosecuting a great mistake and error, raises the question whether the *Bulletin's* supreme purpose in this matter has not been a determination to sustain an undertaking originated by its proprietors without due and proper regard for the rights and wrongs involved. "No. 8 of Series" is so entirely destitute in features of interest, that we pass the plan without comment. The "letter" and "specifications" are characteristic specimens of architectural incompetency. Certainly, any ordinary carpenter, who has had any fair experience at house building, and is capable of using the pen, would do as well or better. And we know that there are lads in apprenticeship, who have not assumed position in the profession as "qualified draughtmen," capable of producing far more consistent and intelligent specifications. If this is more severe than complimentary, we are not to blame, as one calling himself an architect, and so far representing the profession in this city, has published, or prepared for publication, and made public through the columns of a daily journal of influence and extensive circulation, plans and specifications, which, being considered and used as the criterion of judgment upon the abilities and qualifications of the architects of San Francisco, places them as of very low order; and in common with the great mass of the profession, we feel compelled, in self-defense and respect, to repudiate and condemn so palpable a wrong. If parties incompetent in the science of architecture, and unqualified to prepare and complete consistent plans and specifications, see fit to do so in private practice, and can find clients to employ them, it would be a matter between the parties themselves, and receive no notice from us. But, unfortunately, conspicuous errors committed by one member of any profession, to a certain extent affects the reputation of the entire body; and we hold that no one is justified in using personal privilege to the disadvantage and discredit of the many. And if in the community where such things occur the matter is considered as an idiosyncrasy, that fact is not always known in distant communities, and serious considerations and conclusions are substituted.

A communication from a Washington, D. C., correspondent to the *Argonaut* is noticed in another column of this issue, in which he says, "*Of all the stupid, unimaginative, unenterprising, uneducated artists, it strikes me that the San Francisco architects take the lead.*" We presume that this Washington, D. C., man was led to this conclusion by reading a copy of the *Bulletin* containing "one of the series," and taking it for granted that the *Bulletin's* laudations of its protege, making him the paragon of the profession in this city, was true, and that with that as a fact, and "one of the series", as the proof in illustration, no other conclusion could be reached. And certainly, if the architects of San Francisco generally are "stupid, unimaginative, unenterprising, and uneducated," J. C. P. has not proven himself an exception by his copyrighted productions. We also notice in our eastern exchanges, that while some have referred favorably to the *main facts* made to appear, in reference to the cost of buildings in San Francisco—which *made to appear* feature we have repeatedly denounced as untrue, and challenged and defied the proofs—extracts from the specifications have passed around as specimens of the ridiculous manner in which we of San Francisco build homes; thus attaching disgrace upon the profession in this city, and educating the distant sentiment that architecture in San Francisco is yet in a most crude and uncultivated state; all of which we consider a wrong and injustice which should not be tolerated, much less patronized and encouraged by an influential journal. The certificate accompanying No. 8, proves nothing substantially, particularly to us, with the facts in our possession. That a house or houses may have been built as stated, and for the amount named, we will not dispute, but we not only doubt, but affirm as a fact, that they are not erected as required by the papers mentioned. And we reaffirm our former statement that it is *impossible* for any one to erect such a building for the sum of estimate accompanying No. 3, without the contractor, material men, or others suffering loss. And more than this, there are things required by the specifications which are so absurd and ridiculous that no owner would insist upon their application, and no builder would ever introduce them.

Helping people of moderate means to secure homes at small cost is well, when the help proposed is legitimate and proper in itself. But we dispute the propriety of journals or persons pursuing courses calculated to impoverish the working classes in home-building, to the benefit of owners of real estate. Those who "spend their last dollar," and even run in debt to build a homestead, have the houses builded to the good; but the mechanic who executes the building at a bread-and-butter price, has nothing to show for his labor, when his labors are completed; and when the work is undertaken at losing rates, the contractor and his family, if he has one, not only loses the benefits of his hard toil, but is placed at the mercy of creditors, and generally denounced as dishonest, because he is unable to pay his debts; while those who secure his services at less than a right and proper compensation, enjoy the benefits of his losses. The law of equity is the right of every man, and no one should seek gain through the mistakes, or by misleading others into errors. This is a point in our opposition to the "*copyrighting*" scheme of the *Bulletin*, as it tends to create wrong estimates of values in the minds of owners, draws into contracting operations men who are not qualified to estimate and determine cost of construction, who, imagining that they can "perform wonders," undertake impossibilities, while the contracting business generally suffer, because public sentiment is perverted and demoralized in regard to cost of constructions.

Hot and Cold Baths.

The London *Lancet* in a recent number points out the difference between hot and cold baths. The effects of the cold bath, it says, being mainly due to impressions made upon the cutaneous nerves, the modifications of the cold bath largely depend on the power of increasing its stimulating action. The colder the water the more violent the impression. The frequent change of the water, such as is found in the sea or in running streams, increases the stimulating effect. Great force of impact, as when water falls from a height or comes forcibly through a hose upon the body; the division of the stream, as is seen in shower baths and needle baths, and the addition of acids or salt to the water, all act, it would seem, by increasing the stimulating power which the water exerts upon the cutaneous nerves.

Warm baths produce an effect upon the skin directly contrary to that brought about by cold water. The cutaneous vessels dilate immediately under the influence of the heat; and although this dilation is followed by a contraction of the vessels, this contraction is seldom excessive, and the ultimate result of a warm bath is to increase the cutaneous circulation. The pulse and respiration are both quickened, as to the cold bath. The warm bath increases the temperature of the body, and by lessening the necessity for the internal production of heat, decreases the call made upon certain vital processes, and enables life to be sustained with a less expenditure of force. While a cold bath causes a certain stiffness of the muscles, if continued for too long a time, a warm bath relieves stiffness and fatigue. The ultimate results of hot and cold baths, if their temperature be moderate, are about the same, the difference being, to use the words of Braun, that "cold refreshes by stimulating the functions, heat by physically facilitating them; and in this lies the important practical difference between the cold water and the hot water systems."

Utilizing Straw Lumber.

The straw lumber, or pressed boards, described some time since, seems to be coming into use. The Lawrence (Kans.) Tribune says: "S. A. Hamilton, the proprietor of the straw lumber factory of this place, had on exhibition yesterday a sewing-machine table, and it was the unanimous opinion of all persons present that it was as finely finished as any they ever saw, proving beyond doubt that the straw lumber is susceptible of a finer finish than any native lumber grown in the United States, if not equal to rosewood, or any of the fine imported wood used for our best furniture. There is no mistake about the success of this enterprise. This lumber will be splendid for building railroad coaches, for inside and outside finish; for roofing and weather-boarding all classes of buildings, as well as for inside finish. The uses of this lumber are unlimited; but for sewing-machine tables, organs, pianos, and that class of furniture which requires a fine polish, it has no superior for finish, no equal for durability and cheapness. It never warps nor cracks, is insensible to change in the weather, and can be made perfectly fire-proof."—*Leffel Mechanical News.*

PREPARING FLOORS FOR DANCING.—If planed well, paper the floor with sand-paper, then wax it with beeswax and turpentine. To prepare it, melt in an iron pot two or three pounds of common yellow wax; when melted, take the pot off the fire and allow the wax to cool a little, then add one pint of turpentine for each pound of wax, well mix, and wash the boards with the mixture, using a large paint brush; the wax must now be well worked in the boards by friction. The surplus wax may be wiped off with a stiff cloth. Beeswax and turpentine, with friction, is the best plan extant—in fact, at the present day is still in vogue in many of the chateaus in the south of France.

Asininity.

Multitudes expose their ignorance and shallow-mindedness by absurd and foolish utterances. The absence of good sense is often demonstrated by the indiscriminate waggling of ungoverned tongues. A class who have scarce begun to understand the first principles of true manhood, glory in the base delights of vituperations and assertions, which, though intended as reflections upon others, simply illustrate the pitiableness of those who give expression to them, when the subject of attack is not well chosen. Prudent and intelligent men fortify and season their statements with discrimination and fair judgment, qualifying their speech by the exercise of right and honest intent, and a due regard of the facts which do exist; erring not rashly nor willfully, but innocently, if error is committed.

The special intent in this counection is to rebuke a common practice among a class mere novices in the sciences of architecture, who having gained a preliminary knowledge thereof, inflate themselves terribly with shallow conceits in their personal abilities, not realizing that to complete an education in architecture, a thorough mastery of the constructive science is a special prerequisite; and only so far as men rightly understand the mechanical constructive science are they qualified to assume the title or practice of architects. Yet, thousands do assume to be "skilled in the art of building" whose information in that line is inferior to many of the journeymen mechanics who they attempt to direct by plans and specifications. And the profession is often slurred by workmen, because the "fool of an architect" in control has designed or detailed impossible or ridiculous things; and by unintelligent delineations reduced the higher or first "in the art of building" below the lesser or secondary. Yet, it is no uncommon thing to hear such men speak derisively of others in every essential respect their superiors. "He is only a carpenter," "he is only a brick mason," "he is only a mechanic," are expressions often applied to men practicing architecture, who glory in the fact that when they plan and specify a building, they "understand whereof they speak"; and by their practical knowledge of mechanical principles and practice are able to avoid the stupid and silly blunders so often made by those whose intelligence in the same line is simply scholastic and speculative. If truthful discrimination always accompanied such intended slurs, there would be no objection to the application; but when applied to men who have honorably passed from the ranks of mechanical to professional pursuits, carrying with them the advantages of large mechanical experiences, by which their architectural studies are simplified and rendered more correct and thorough, the application forcibly exemplifies the style and type of mind from which it emanates. But small streams are generally noisy and shallow, in which large fish are not found.

We are not advocating, but do most heartily condemn the attempts of men to ape the architect—whether carpenter, mason, or mechanic of any class—who have not attained a fair mastery of first pursuits, and are good at nothing. And we equally condemn the assumption of architectual duties by men who have simply picked up a limited supply of ideas from plans and designs originated by others skilled in the art of designing. Architecture is too weighty a matter to be comprehended and understood by any process short of close application, incessant study, and constant practical experience. And those who suppose that they have measured its depths by a few years of office instruction, or others who imagine that, having walked in its shades and shadows, they are qualified to scale its mountian heights—simply assuming the lion skin, while the braying detects the voice, and the foot-prints the hoofs of the ass.

While measureless honors are due to the many giant minds in all ages who, without more than incidental mechanical experiences, grasped and mastered the intricacies of architecture in a high degree, others whose first pursuits here exclusively mechanical, have also given to the profession and the world architectural examples and illustrations of priceless value. And many of the best works upon architecture published have come from the brain and pen of those who were first mechanics and then architects. And the presumptuous novices, who assume too much for themselves, often glean their best knowledge and ideas from the published works of "carpenter-architects."

As far as the architects of this city are concerned, the greater number of the most prominent among them at one time "shoved the jack-plane," or "slung the trowel"; and if there is a pleasing reproach in this fact to some, the enjoyment of that fact is still more pleasing to those who enjoy the distinction. And many of the best illustrations of architectual skill in San Francisco are from this branch of the profession. At the same time, we withhold no honorable consideration from the many gentlemen of large experience who have made themselves proficient in the profession without having devoted any portion of their time to special mechanical pursuits. But we have yet to meet the first acknowledged competent architect who depreciates the great advantage of mechanical experiences in connection with architectural studies and practice on the part of those intellectually qualified to enter the profession.

The Iron Interest of California.

The existence of iron in almost unimaginable large quantities in California, has been a prevailing opinion among those who are to any extent familiar with iron ore deposits, and have given the matter attention. The indications in the various localities are so marked and well-defined, as to dispel all doubt upon the subject. And in conclusive proof of this proposition, the results attained at the smelting works near Clipper Gap, Placer county, establishes the certainty that California can supply all the pig iron necessary for home consumption, and if cost of transportation would justify—the markets of the world beside. All possible credit is due to the energy and enterprise of Mrssrs. Egbert Judson, Anson P. Hotalling & Irwin M. Scott, who have opened the first page in the great iron history of the golden State. We are indebted to the San Francisco *Morning Call* for the following facts: In 1862-3, efforts were made in the legislature by bounty offerings, to any one who would produce the first specimen of smelting from California iron ore, but in vain; and so the matter rested. Senator Higby, however, did take quantities of the Placer ore east, had it smelted, and converted into steel. The amount of capitol at present invested, is $300,000.

In this connection we may mention that the only other smelting works on this coast, were established by the "Oregon Iron Company," at Oswego, on the Williammette river, a few miles above Portland. The first blast furnace here was built in 1865, but the company failed. Afterward the Oswego Iron Co. was incorporated, and commenced blasting in 1868 with a capacity of 18 tons per day. The company owns 2,000 acres, including the famous "Prosser bed" or deposit. The quality of the Oregon ore is hematitic, and yields forty per cent. of metallic iron. This the Placer county works use charcoal, which fuel produces the strongest iron known, and will produce more iron than any other fuel. Charcoal possesses the mysterious power of "chilling"—a process the iron manufactories use, but do not thoroughly understand.

The company's works are situated about ten miles from Auburn, on the Clipper Gap road, which, beyond being a wood station and delivery point for the products of the works, is unimportant. The furnace has a capacity of 40 tons for each 24 hours, with all modern improvements, and being nearly a duplicate of a blast furnace in Chicago, 66 feet high x 17 feet at its greatest diameter; the California furnace being 47 feet high. The furnace stands in the southerly end of the building, which is 150x200 feet, with 13 beds to receive the molten metal. The blowing engine is 135 horse-power, and discharges 4000 cubic feet of air per minute.

There are (May 29th) some four hundred tons of metal on the ground, beside 200 tons shipped to San Francisco, and the accumulation of 30 tons per day. The quality of the iron is considered the best that has ever been offered on this coast. At the foundaries where it has been used, it required sixteen blows to fracture a pig of the Placer county metal, while a Scotch pig of the same thickness and area, yielded at one blow of the sledge-hammer in the same hands. But the tensile resistence of this iron is better demonstrated, under rule, by the following:

Samples Marked.	Resistance.
No. 4	18.387 lbs. per sqr. inch
" 2	18.629 " " " "
" 1	17.887 " " " "

In Scotch pig iron, same conditions, resistance ceased at a strain of about 6,000 pounds. The Placer county iron is said by all experts to equalthe Salisbury (Conn.) metal for the manufacture of car wheels, and can be rolled into "merchaurs bar" of best quality.

The furnace is at present supplied with ore from deposits immediately in the neighborhood of the works. There are fine cuts within short distances of each other, and in two, true fissure veins, with well-defined walls, have developed. The 640-acre tract on which the buildings are situated, and where the mining is yet in its incipient stages, is no doubt one vast iron field, as every evidence exists of ore in every direction. Beside this apparent inexhaustable supply, the company have in possession some eighty acres, called the "Scott mine," about four miles from the works, on a portion of which, visible from the road, two cuts have been made, revealing ore of the richest quality. A magnificent body of ore has been exposed here. The character of the ore generally is what is known as "red hermatite," of cherry red to a reddish brown color, and which, with the exception of magnetite, carries a greater percentage of metatic iron than any other variety. While magnetite assays 72.41, hematite gives 70. Pure hematite is the ore that furnishes the iron for the manufacture of Bessemer steel. The number of hands employed are:

Furnace hands	50
Employed in mining	40
Charcoal burners and teamsters	75
Incidental	12
Total	177

Quack Carpenters.

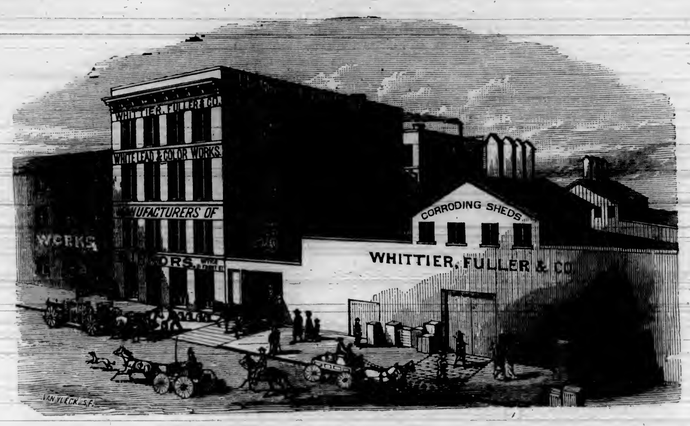
No trade is so pestered with quacks, botches, and pretenders, as that of the carpenter and joiner's. Go where you may, the ubiquitous botch, with his brier-root saw, battered jack-plane, and defective square, is ou hand, ready to undertake the designing and erection of a back fence or State court-house. Gifted with a mind that rises above the ordinary concerns of life, he looks with contempt on the man who has "fooled" his time away learning a trade, or who fritters away his employer's substance by making good joints and lasting work.

It makes no difference to him what kind of a building you may have to erect, he is always ready, willing, and able to do it, and can make the price to suit. Tell him how much money you wish to expend, and the size, style, and character of building you want, and you will find him equal to the difficult task of making one fit the other. He is full of promises, and will guarantee all kinds of good things if you will only let him have a contract. When the work is completed—according to his idea of completeness—if it stands to be completed, you are astonished, though not charmed, at the "emphasis" of the joints and peculiar bear-skin like finish of the work. The quarreling, the profanity, the law-suits, suicides and murders that follow, are interesting, romantic, and delightful in the extreme, but amid all this, the "botch" never loses his equanimity; his work may tumble down, his doors may not swing, his sashes may jam in their frames, his stairs squeak and grumble under the load of an infant, and his joints be visible to the naked eye half a mile distant, yet he pursues the even tenor of his way, and, like Eugene Sue's "Wandering Jew," he leaves disease, misery, desolation and death wherever he leaves his hammer-marks—which are numerous enough, God knows—and seems alike ubiquitous and imperishable. It may be that, like many other loathsome animals, the "botch" is a necessity in the economy of nature; if so, the laws of nature are not nearly so perfect as we once thought them.—*Builder and Wood-Worker.*

THE demand for bound volumes of this journal for 1880 has been such that we have had 500 additional copies bound, which we will send to any address at the reduced price of $2.00 per volume.

With our July number we shall make an improved showing in our cut department.

PIONEER WHITE LEAD WORKS.



What is required to institute and carry to a success a manufacturing enterprise? Nature is generous with her gifts; but she forces man to the exercise of his endowments, to develop them, and give the substance a form for his appreciation and enjoyment.

The very many natural resources of this Coast are marvelous, and they impress all thinking visitors with the conviction of a great future. With but few exceptions, these wondrous gifts of Nature are at present but mere curiosities, and are spoken of and written of only as such—with prosy theories on their practical value if utilized.

To the business man, scientist, or to the practical thinker who comes amongst us, it is a matter of surprise that our people, with their wealth, do not develop these resources, and build up our coast with a working and useful population, instead of pursuing the selfish course they are now, which is that of the usurer.

Our capitalists and business men are blind to their own interests, in not interesting themselves in the establishment of manufacturing enterprises, which will secure for them a certainty of fair returns for their encouragement.

The people of this Coast cannot afford to let existing opportunities lie idle, *as a dependency on foreign sources means our impoverishment. Manufacturing guarantees the reverse, as it furnishes employment to, and retains among us, consumers,* that vital quantity in a progressive and permanent prosperity.

We have much pleasure, however, in being able to refer to some notable exceptions to the general apathy of our business and moneyed men.

Heading this article will be seen an illustration of the results of the energy and public spirit of one of the leading and pioneer mercantile firms on the Pacific Coast.

Messrs. Whittier, Fuller & Co. several years since commenced the manufacture of White Lead in this city.

They purchased ground on Fremont street, between Howard and Folsom, covering a surface of 137 6-12x275 feet, and thereon erected factories and sheds, for the purposes of the business.

Their whole works, machinery, and appliances, are on the most approved plans, and excel in detail and completeness those of any other White Lead factory in the world.

This is essentially a *home institution, from the ground through to the finished product of their mills.*

Few can realize the importance to the whole community of this enterprise.

In the first place, it encourages the development of our mines, as all the pig lead used is the production of our own coast.

It thus gives the Miners employment.

As all lead ores have to be smelted to get the metal,

It thus gives the Smelters employment.

The transportation from the producing points invokes aid of the carriers:

It thus gives Teamsters and Transportation Companies employment.

A very large quantity of oil is used in the grinding of the lead. All this oil is crushed from seed raised in this State.

It thus employs the Farmers.

All the pots used in corroding-sheds are made here.

It thus gives employment to the Potteries.

The maintaining of a factory requires the services of machinists, millwrights, and laborers:

It thus gives employment to an Army of Operatives.

And in fact, everything in and about the works is of home manufacture. *Now, what does the employment of the many branches of industry hereinbefore enumerated demonstrate?* This fact: that as they are *all consumers,* their wants *engage every business* on the Coast to supply them.

The product of the

Pioneer White Lead Works

Is not excelled by any other make in the world. It is guaranteed *strictly pure; it is white, very finely ground,* and has *superior body* and *covering properties.*

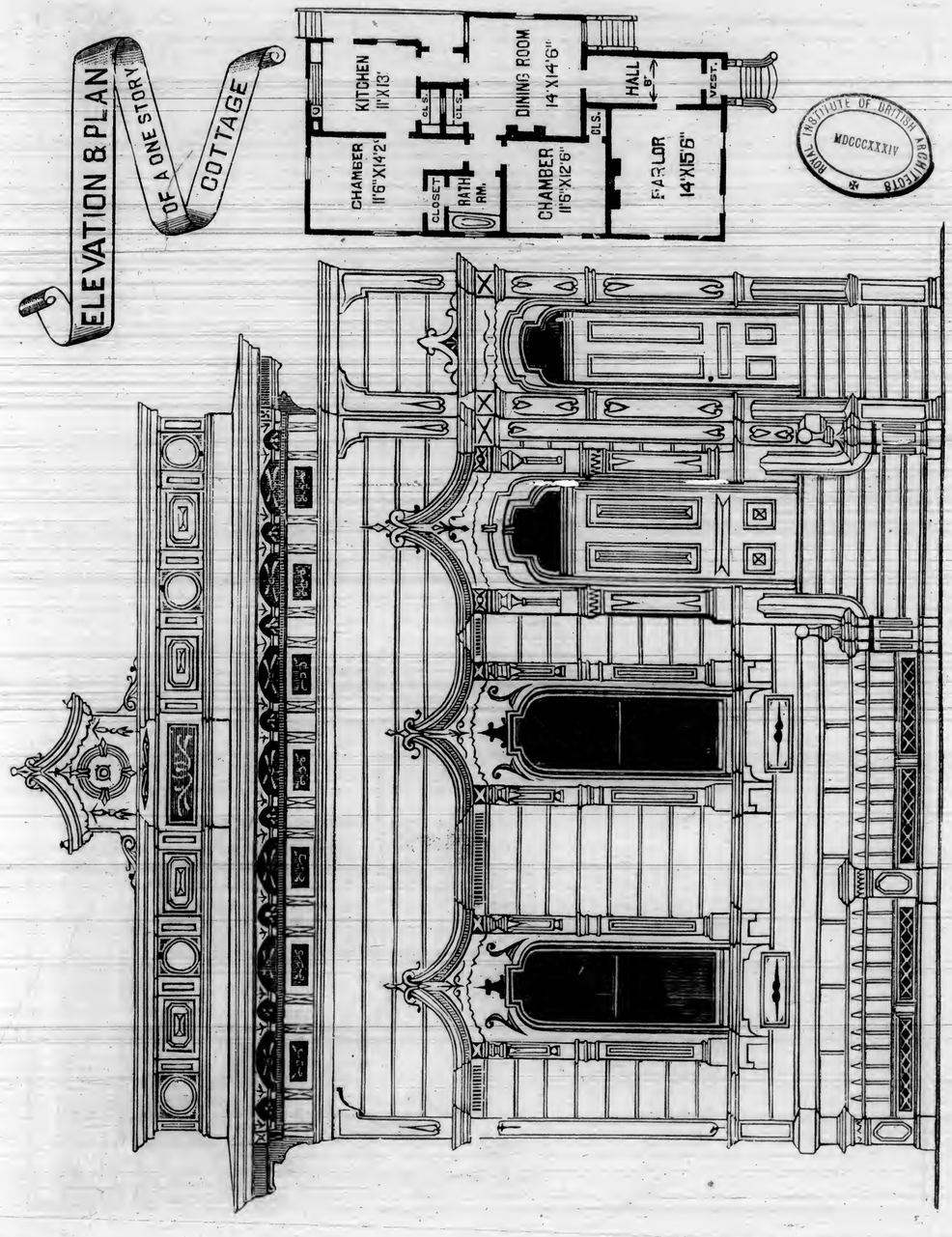
The manufacturers announce their determination to always offer it to consumers at less prices than any imported brands.

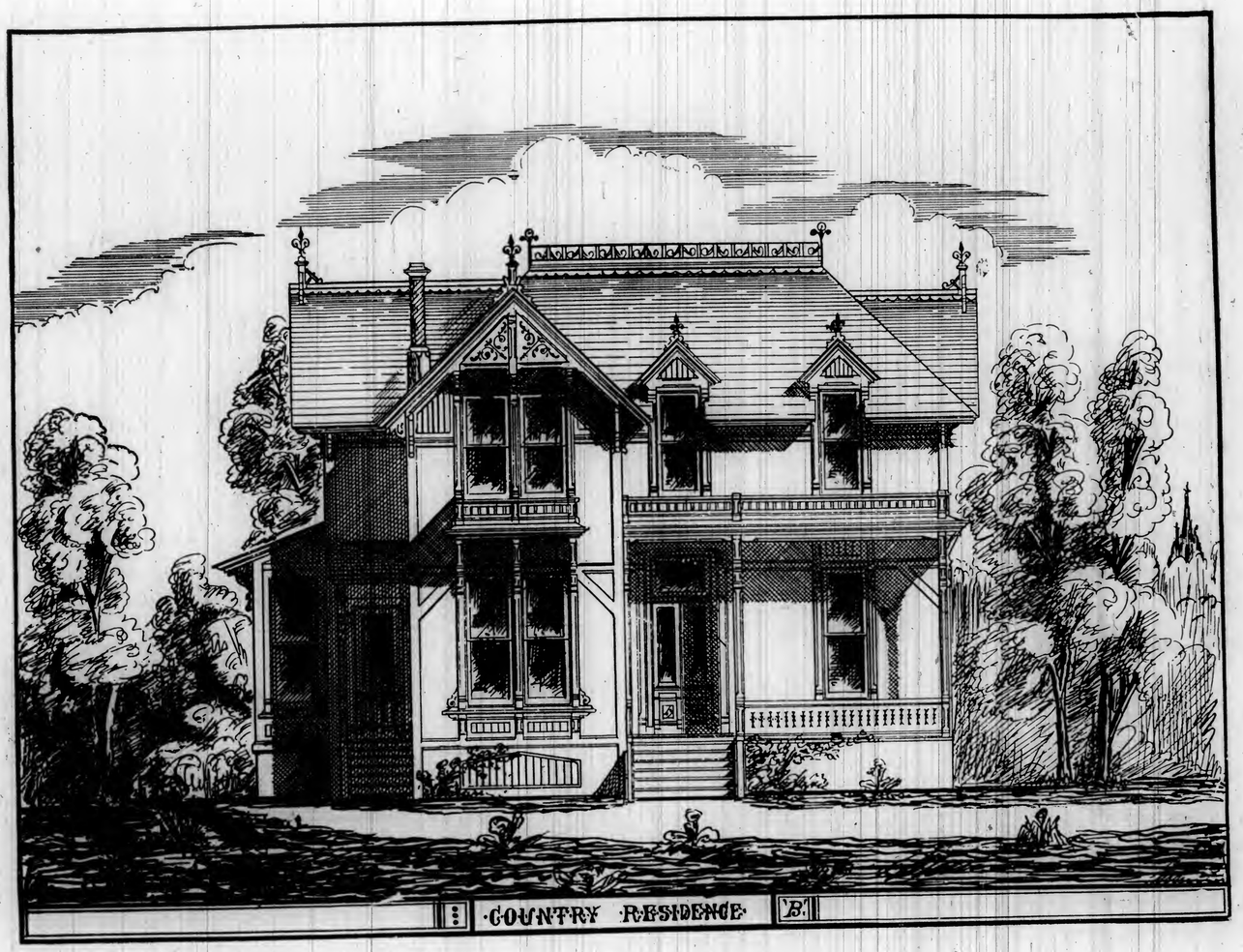
As against the imported, there would be great economy in its use, even at equal prices. All painters know that White Lead that has been packed any considerable time loses a great deal of its vitality, in the absorption by the kegs of a considerable quantity of the oil; leaving a hard mass in the keg, involving time and expense in its extraction and working up for use, and a costly addition of oil.

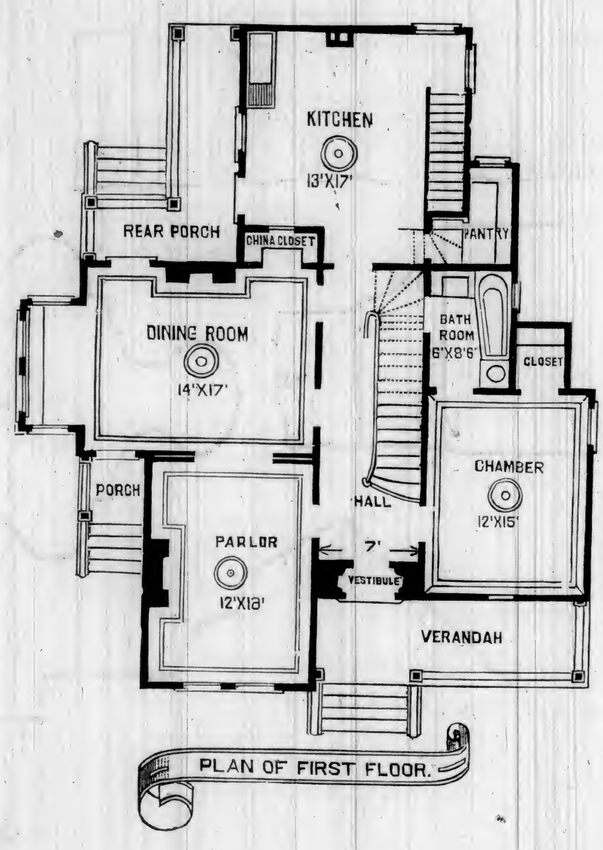
The Pioneer being all freshly packed,

all this expense is avoided.

We know what the White Lead is, and we have no hesitation—in fact we take pleasure—in recommending our brother architects to write it in their specifications and to *insist on its use: first, on the score of quality; second, economy; third, the general benefit to all of us.*




COUNTRY RESIDENCE
B.


KITCHEN
13'X17'
REAR PORCH
CHINA CLOSET
PANTRY
DINING ROOM
14'X17'
BATH ROOM
6'X8'6
CLOSET
CHAMBER
12'X15'
PORCH
HALL
PARLOR
12'X18'
7'
VESTIBULE
VERANDAH
PLAN OF FIRST FLOOR.

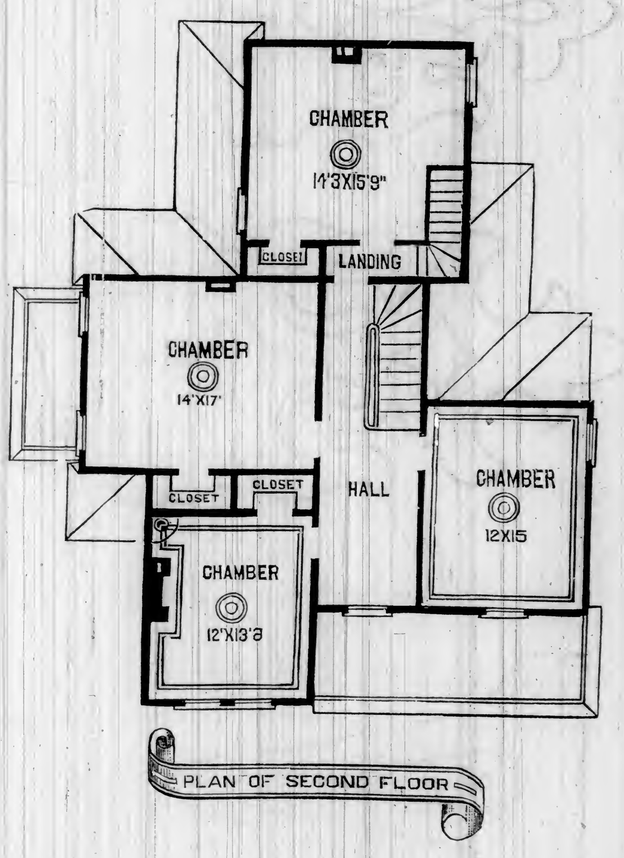

CHAMBER
14'3X15'9"
CLOSET
LANDING
CHAMBER
14'X17'
CLOSET
CLOSET
HALL
CHAMBER
12X15
CHAMBER
12'X13'8
PLAN OF SECOND FLOOR

PLATE B.

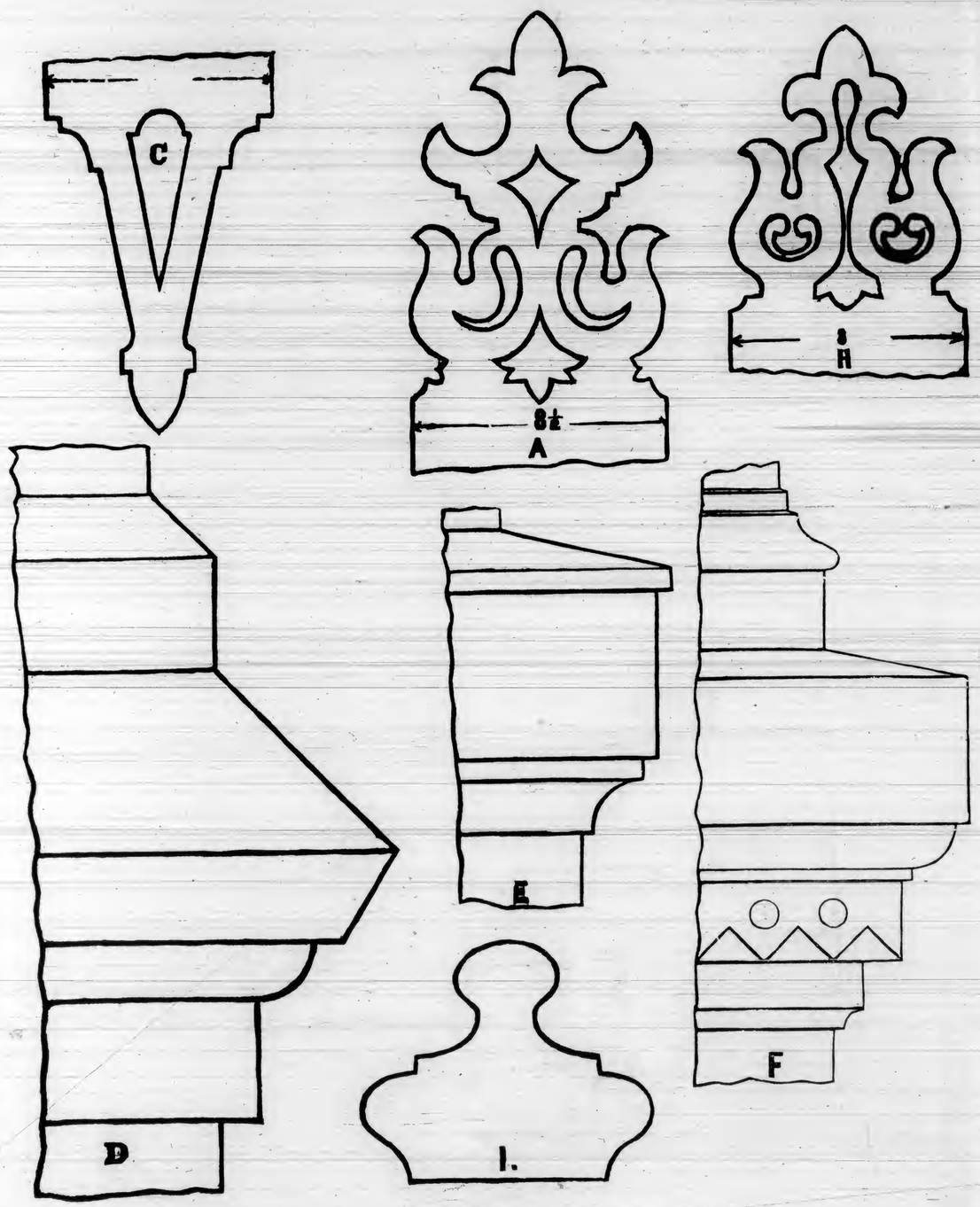


PLATE C.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, women and children as well as those of the "nobler sex," we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

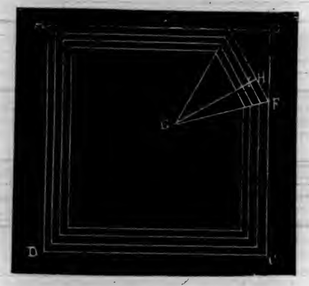
We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

BUSINESS MANAGER OF ARCHITECT:—Does Rosendale Cement mixed with mortar made of Santa Cruz lime cause a white matter to ooze from bricks, resembling alkali? G., San Jose.

ANS.—Neither Rosendale nor Portland Cements will have the effect you mention.

ANSWER TO "VALLEY HOME."—A field 81 rods square has one of its corners clipped off by a line meeting the sides at 60 and 80 yards, respectively, from the corner. A man commences plowing around the field, turning a furrow one foot wide. How many "rounds" will he plow before the unplowed portion becomes a square?



Bisect the angles A E F and C F E, and produce the bisecting lines to meet in G. Draw S H perpendicular to E F.

There will be as many "rounds" as the width I H of the furrow is contained times in G H.

We will leave the solution of the problem to our readers, and trust that some of them will send us an analysis of their calculations.

In this case, E B=60 yards; B F=80 yards; E F=100 yards; I H=1 foot or $\frac{1}{3}$ of a yard, and the number of rounds is 360.

BUSINESS MANAGER OF ARCHITECT:—Is there a *rule* by which the proportions of the *rise* and *run* in a pair of stairs can be obtained?

L. M. S., Menlo Park.

ANS.—Various rules exist to ascertain the proportions of the *rise* and *run*; but all of them only hold good within certain limits. One of these rules is founded on the principle that it takes twice as much effort to raise the body a certain height, as to walk the same distance on level ground.

Now, the usual convenient step is assumed to be 25 inches; therefore, if twice the rise is subtracted from 25 inches, the remainder ought to be the run of the steps in proportion to such rise. According to this rule, the run for a 6-inch rise would be 13 inches, and for an 8-inch rise, 9 inches.

Another rule assumes the proportion of 6 inch rise by 12 inch run as the standard. The product of those is 72. Now, to find the run for any other rise, divide 72 by the rise in inches, and the quotient is the run. By this rule a 7 inch rise gives a 10 2-7 inch run, and for an 8 inch rise a 9 inch run.

In this connection we will say a few words in regard to a common error, viz.: When the height of a story is 14 or 16 feet, a person will arrive at the landing of a flight of stairs *with less muscular effort* by having the risers 5 inches, with 14 inch run, than if the riser was 8 inches with a 9½ run. On a narrow step the foot has about room enough to plant itself firmly, and during the act of raising the body, the weight is supported by the leg while in an almost vertical position; but on the wide step, the foot has to be moved forward so far, that during the act of raising the body the leg must support the weight in an inclined position, which takes more power. From this, it would appear that a 5 inch rise, in combination with a 9½ run, would make easy stairs. Such is not the case, however. The natural elevation of one foot above the other while contracting the leg is about 8 inches; in swinging the elevated foot forward it descends slightly and will strike gently on the next step when the rise is about 7 to 7½ inches; while when the rise is only 5 inches, the foot will again descend so much in order to strike the step, that the useless expenditure of power is felt.

On the other hand, when the rise is increased much more than 8 inches, the extra or unnatural effort which has to be made to elevate the foot high enough in order to plant it on the next step will make the steps "hard".

BUSINESS MANAGER OF ARCHITECT:—To settle a little difference of opinion among students, will you please give in your next issue the epitaph on the tomb of the great architect, Sir Christopher Wren. STUDENTS, Santa Clara.

ANS.

"Beneath lies Sir Christopher Wren, the builder of this church and city, who lived upwards of 90 years, not for himself, but for the public good. Reader, seekest thou his monument? Look Around!"

BUSINESS MANAGER OF ARCHITECT:—While observing our Court-house, we had the curiosity to calculate how many square feet there were on the surface of the dome. No two of the party agreed, and we have left the matter to you for settlement. Please answer in your next.

L. S. AND PARTY, San José.

ANS.—You do not give either the circumference or diameter of the dome; we are unable, therefore, to answer your question.

To find the surface of a sphere, *multiply the circumference of a great circle by the diameter; or, multiply the square of the diameter by the quotient* 3.14.

BUSINESS MANAGER OF ARCHITECT:—Can you inform me how to make a paste to put fancy cards or pictures in an album; something that will not cause the paper to wrinkle, and yet hold the picture perfectly secure? F. D., Berkeley.

ANS.—Make a thick paste of starch, and strain through a linen cloth to remove lumps; add a few drops of oil of cloves. When you apply the paste, use a moderately stiff brush.

We have been requested to publish an article on preparations for filling porous hard woods. The following article will give all the information necessary:

A FILLER FOR POROUS HARD WOODS.—Use boiled oil and corn starch stirred into a very thick paste. Add a little japan, and reduce with turpentine. Add no color for light ash. For dark ash and chestnut, use a little raw sienna; for walnut, burnt umber and a slight amount of Venetian red; for bay wood, burnt sienna. In no case use more color than is required to overcome the white appearance of the starch, unless you wish to stain the wood. This filler is worked with brush and rags in the usual manner.

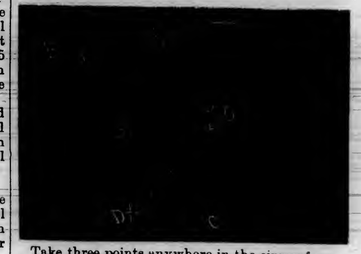
Let it dry 48 hours, or until it is in condition to rub down with No. 0 sandpaper, without much gumming up; and if an extra fine finish is desired, fill again with the same materials, using less oil, but more of japan and turpentine. The second coat will not shrink, it being supported by the first coat. When the second coat is hard, the wood is ready for finishing up in any desired style, or to any degree of nicety, by following up the usual methods. This formula is not intended for rosewood, and will not be satisfactory if used therefor.—*T. F. Page, in the Coach Painter.*

BUSINESS MANAGER OF ARCHITECT:—Can you tell me of a church whose dome is gold-plated? A member of your society made a remark to that effect, but could not give me the particulars. By answering, you will oblige G. F.

ANS.—The dome of the Invalides at Paris is gilt; the dome of the Church of St. Isaac at St. Petersburgh is covered with gold plating of some thickness, and in the sun's rays shines like a star of the first magnitude at a distance whence no other part of the city is visible.

BUSINESS MANAGER OF ARCHITECT:—Will you please illustrate an easy method by which the center of a circle can be obtained? W. R. K.

ANS.



Take three points anywhere in the circumference or arc; draw the chords A B and B C; bisect them by the perpendiculars E O and D O, and O; their point of intersection, will be the center sought.

BUSINESS MANAGER OF ARCHITECT:—When and where was coal first used for smelting iron ore? FOUNDRYMAN.

ANS.—In 1735 the problem of smelting iron with pit coal was successfully solved by Abraham Darby at Coalbrookdale.

LIQUID WOOD.—We are informed, says the *Northwestern Lumberman*, that sawdust can be converted into "liquid wood" and afterward into a flexible and almost indestructible mass, which, when incorporated with animal matter, rolled and dried, can be used for the most delicate impressions, as well as for the formation of solid and durable articles. To accomplish this, the method pursued is to immerse the dust of any kind of wood in diluted sulphuric acid, sufficiently strong to affect the fibers, for some days, the finer parts being passed through a sieve, well stirred, and allowed to settle. The liquid is drained from the sediment, and the latter mixed with a proportionate quantity of animal matter, similar to that used for glue; the mass is then rolled, packed in molds and allowed to dry.

NEW WORDS.—The new edition of Webster's Unabridged Dictionary, numbering 1,928 quarto pages, contains nearly 5,000 new words, or new meanings of old ones. These words range over the fields of science, medicine, invention, discovery, research, etc., departments which in this age are constantly yielding fresh ideas, requiring new words to express them.

That they have not been hastily compiled is evidenced by the accuracy of and careful study given to their etymology and definitions.

The intelligent reader, or any reader who would be intelligent, will find this feature of the dictionary quite indispensable.

The *Morning Call* of the 15th ult. reproduces without credit, a large portion of the "Building Intelligence" of this journal in its May issue. The *Call* often cries thief, thief at other journals which it charges with using matter from its columns without credit. How is it when the *Call* uses the matter culled from this journal without credit? Our "Building Intelligence" is not obtained without cost in time and labor, and as we publish the only correct, or approximately correct information in this direction, it is only fair that we should receive full credit, particularly from journals which constantly boast of their great enterprise.

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**

Habits of Young Mechanics.

Let all young mechanics and apprentices who read this remember that there are many things in shop associations which have a tendency to mislead young men. A boy may be placed in a shop where the men read very little, and seem to have formed a prejudice against all manner of scientific literature. A shop of this character is very dangerous to a young man who wishes to fill a high position in the profession he may choose. The men referred to will ridicule the first appearance of a disposition to study, and the sooner the ambitious young man gets out of such a shop the better, unless he has a will strong enough to stick to such a shop, live down prejudices, and afterwards take charge of the shop. Let young mechanics and apprentices select the business they intend to follow for life, and, after careful consideration, adopt it with a determination to stick to it. Do not learn a trade or profession simply because some relative or friend wishes you to do so. Many a youth has learned a business after this fashion, started for himself and failed. He blamed the business as the cause of his failure when he alone was to blame, because he had made a wrong choice and was unfitted for the business. He simply tried an experiment to see if he was adapted to the business, and the result proved that he was not. We advise young mechanics to give up the idea that *the world owes them a living*. They indeed have a chance to earn their living, but there is no law which says that the world shall bring the living up to a man's mouth. Another idea that should be given up is that the *old man* (which is a too common and irreverent expression for father), or some other relative, is going to die and leave them a fortune. These ideas are well calculated to occupy the time which a young man should give to study. Another suggestion is that a young man should spend the time out of the shop largely in study, bearing in mind the fact that *a man is always better paid for the labor which embodies thought and mental labor, than for that which merely requires muscular effort.*

Not long since we heard an eminent man in his profession remark: "I expect to buy books, and study as long as I live." We could suggest no better course for adoption by the young mechanic than the above, and if followed up zealously, it will produce pleasant results. Hard work is a pleasure to the youth or young man whose purpose is fixed in regard to his future course, and we hope that our young friends will profit by the practical examples before them, and be encouraged to push forward to the final success, which is sure to crown zealous efforts.—*American Machinist.*

YOUNG architects, who show themselves overready to spend precious time and money upon competitive designs for public buildings in distant cities, where they have no friends or influence to help them, may learn a useful lesson from the testimony now being taken before the committee appointed to investigate the transactions of the architect who has had in charge the construction of the Chicago Court-house. Our readers will remember that this architect, Mr. Egan, was not long ago accused of conspiracy with a "ring" of contractors and others to defraud the country of a large sum of money, which he was said to have accomplished by means of duplicate plans and specifications, one set of which was signed as constituting a part of the various contracts, while the other set, providing for an inferior class of work, was actually followed, the difference in value between the two being appropriated by the "ring." The accusation was made by one of the conspirators, Mr. C. F. Periolat, who professed to have turned State's evidence in order to be revenged upon Mr. Egan for neglecting to divide the spoils as agreed. According to Mr. Periolat's story, now repeated under oath, he being at that time influential with the city and county officials, was in 1874 introduced to Mr. Egan, of the firm of Armstrong & Egan, who were preparing competitive plans for the new building, and made with these gentlemen a contract setting forth that they were in need of three thousand dollars to meet the expense of preparing plans, in consideration of that amount to be advanced by the said Periolat they would, if successful in securing the commission, pay to him one-third of all fees, percentages and emoluments to be derived from the said work; while if unsuccessful, they would pay him nothing. Most people would consider three thousand dollars so advanced as likely to prove what the brokers call a "permanent investment," and so did Mr. Periolat, especially when Mr. Otto H. Matz, by the influence of the German members of the Board of Commissioners, was awarded the first prize, and elected architect of the building; but Messrs. Armstrong & Egan representing to him that if they secured the commission their profits from "extras, charges and percentages from contractors" would be at least two hundred thousand dollars, of which he would have a third, he was stimulated by this dazzling prospect, as well as by the hope of recovering his former advances, to renewed efforts. Fortunately for him, Mr. Matz, as he says, "got drunk one night, and talked too loud," and offended the commissioners. There were still two other prize designs, but as their authors had no money or influence, this circumstance was unimportant, and, as he says, he "bought up enough commissioners to get the job transferred to Egan." The average price of a commissioner was about two thousand dollars, and when subsequently the city authorities appointed another architect to design their wing of the joint building, he was obliged to buy a number of aldermen at one thousand dollars apiece to have this half of the "job" also handed over to Mr. Egan; so his whole outlay was something twenty-four thousand dollars. In addition to this, he expended eight thousand dollars in procuring for Mr. Egan the commission for erecting the Criminal Court building, and had him also appointed architect of the insane asylum, so that his actual outlay was nearly thirty-five thousand dollars. In return for this, Mr. Egan, instead of sharing his profits with him as he agreed, had only paid him fifty-two hundred dollars, notwithstanding that he had obtained for him to pay him fifteen thousand dollars as extra on account of changes in the plans, with the express understanding that a part of this amount should be applied to his claim. Feeling himself aggrieved by this treatment, he resolved, as Mr. Egan expresses it, to "squeal" upon the ungrateful architect, and it is to the carrying out of this purpose that the present developments are due.—*The American Architect and Building News.*

Costly Conveniences.

There is a tendency in the art of house-building to do away altogether with the cumbrous necessities which require the service of human hands, and to make everything self-regulating and automatic. At the present rate of progress we shall soon need no manual labor of any kind, for there will be nothing for man-servant or maid-servant to fetch or carry. Our light will be electrically supplied, our heat for all purposes will be furnished from a central source, elevators will supersede stairways, and no doubt even cooking and washing, which are the last ditch, the impregnable inner fortress in which believers in old fashioned housekeeping intrench themselves, will be accomplished by some new miracle, requiring nothing of the lady of the house except to preside over it with grace and luxurious ease. As for the hired girl, we may say without malice that the human family will be happily relieved of her presence. Articulated or stuffed she will be gazed at in the museums of a future generation as we now contemplate the reconstructed monsters of a pre-historic age. She will be, not to speak ungallantly, the Megatherium of a dead and gone epoch of civilization.

But in the midst of this happy progress, it is well that we should bear in mind that convenience may be gained at the sacrifice of health, and that when so purchased it is a bad bargain in every way. In no other respect is this so strikingly true as in those departments of house-building which are intrusted to the plumber. Many people have now-a-days a fixed conviction that a house is not fit for occupancy, because not thoroughly "modern," which does not include piping for hot and cold water in every sleeping apartment, fixed wash-stands and bath-tubs, with drainage into the public or private sewer, and water-closets under the common roof, similarly provided as regards the carrying off of impurities. This is the perfection of convenience. And in theory, no doubt, it is the perfection of cleanliness and healthfulness as well. But in practice, the lamentable degree of its shortcoming is proved by the sad experience of many thousands of households. The deadliest enemy of life and health in a modern city is sewer-gas. The emanations from a defective or obstructed drain-pipe leading from a sleeping apartment have been fatal to a host of unsuspecting victims. Typhus fever has slain its thousands, and diphtheria its tens of thousands, through the direct instrumentality of these much-coveted "conveniences." Unfaithful workmanship, in the first place, is often the source of this dire mischief; but subsequent neglect, arising usually from total ignorance of the harm which is liable to ensue from any derangement or mishap, is quite as often at the root of the calamity.

Prince Albert of England is said to have owed his untimely death to the noxious atmosphere caused by neglected drains in the palace in which he lived. The Prince of Wales, a few years since, was nearly carried off by a similar disease, begotten by like conditions. The recent alarming illness of the wife of the President of the United States was at first imputed, by persons not conversant with the facts, to supposed defects in the drainage of the White House; but this conjecture was promptly set aside by a statement that "there was not a single stationary wash-stand in the Executive Mansion." In other words, the house was held to be in good sanitary condition, not because it was supplied with "modern conveniences" of this sort, but because it was happily without them.

The moral of which is, not that we should return to the rude and comfortless ways of life which our forefathers, knowing no better, were content to follow, but that we should realize the fact that the improved facilities by which we live and move and have our being do not relieve us from the necessity of a daily exercise of prudence and common sense. They may lighten the burden of the hands, but they impose a new responsibility upon the brains. The fact should never be lost sight of by those who enjoy the conveniences of a modern dwelling, that the luxury they prize so highly is, in the respects we have noted, a source of continual peril, to be averted only by constant watchfulness. —*The Leffel Mechanical News.*

Our Illustrations.

Plate A is a plan and elevation of a one-story cottage, containing hall, parlor, dining-room, kitchen, two chambers, bath-room, closets, etc. The sizes appear on the ground plans. The cost can be made to vary from $1,600 and upwards, according to economies or elaborations introduced.

Plate B represents a two story residence specially adapted for the country. Its many conveniences and excellence of arrangements are shown by the plans. Two buildings of similar design and character, erected from plans prepared in this office, have recently been finished at costs, respectively—$3,800 and $4,500. Plan B can be varied from $3,800 and upward.

Plate C shows several details, A C and H being designs of crestings or barge and verge board finishes of cornices in certain style of houses. The sizes can be changed to suit circumstances. D, E, and F are sections of water tables, and I, a hand rail.

We have frequently been requested to give detail cost of our illustrations, but we prefer not doing so, as that should be done by the architect engaged in the erection, and unless complete specifications were prepared, no better than approximate value could be stated; and specifications prepared by one architect might vary cost 25 per cent. over or under those prepared by others.

The regular monthly meeting of the *Pacific Coast Association of Architects* occurred on Friday evening, June 3rd; but owing to a change in the hour of meeting from 2 P. M. to 8 P. M., and a change also in the place of meeting, but few were present, and no business was transacted. The next meeting will be held the first Friday in July, at which it is hoped that every architect having at heart the best interests of the profession will be present.

MR. A. F. KNORP informs his friends that he has resumed business again at Mechanics' Mill, 411 Mission st. Mr. Knorp's ability as a manufacturer of office and library furniture is well known. His designs are neat and elegant; moreover, his contracts are carried out to the letter, always giving satisfaction.

Send for a copy of the "Steel Square and its Uses," handsomely bound and illustrated. Price 75 cts.

Fatal Accident—Warning to Careless Mechanics Building Scaffolds to Work on.

A happening occurred on the 10th inst. in the new building of Messrs. Sol. Wangenheim & Co., corner of Davis and Sacramento streets, which resulted in the death of one man, and serious, if not finally fatal injuries to another.

The case has been variously stated by the daily papers, with pardonable errors of detail, as it is always difficult for a reporter to obtain the correct facts, particularly when the case is surrounded by conjectural circumstances, as in this instance. For, although there was a considerable number of working people, male and female, engaged at labor in the story from which the party fell, no one was eye witness to the circumstances of the fall; but from all the information obtainable, the facts are as follows: The building is four stories in height above the cellar, and at the time of the accident was nearing completion. A number of painters were at work in the fourth story, and the machinists in the cellar fitting up the engine, elevator, etc. One of the painters, Joseph F. Tyrrell, was engaged in painting some window frames, etc., near the elevator shaft, to get at which a scaffolding was necessary. This he provided, using as one of the ledges or bearers a piece of old, dry, 2x4-inch Oregon pine scantling, in which, unnoticed by him, was a large knot. As soon as Tyrrell reached the scaffold, the ledger broke at the weak point, and participated him down the elevator well. At the same time the machinists were busy in the cellar, and at about the identical moment of time when the painter began his descent, Andrew Rhyner, one of the machinists, stepped upon and started the elevator, and had only ascended about one foot above the main floor, when the descending body of Tyrrell reached the elevator, and in some manner struck or knocked Rhyner so as to cause fracture of the skull; and the concussion was such, that Mr. Jardine, the machinist contractor, who was near the engine, supposing that the elevator was crushing its way through some unnoticed obstruction, shut off the steam immediately, only to find that the contact which caused the alarm was that of two human bodies—the one descending a distance of about fifty feet, meeting the other ascending upon an elevator.

Without intending special reflection upon the painter, who has paid dearly for his lack of caution in preparing a scaffold, it must be admitted that such absence of care on his part caused the terrible affair, resulting as it has in the death of one man, to whose goodness as a steady, upright, and worthy man, and a superior mechanic, his employer and shop mates strongly testify; and to the other, permanent injury for life at least, if nothing more serious.

THE PACIFIC COAST-PRESS ASSOCIATION terminated its third annual session on Wednesday, June 3d, by a very enjoyable banquet at Giamboni's restaurant. A goodly number of ladies were present, and two hours were pleasantly spent in disposing of the excellent collation provided for the occasion, and speeches by members of the press and friends present. The leading sentiment expressed at the banquet and during the several sessions of the association, was the improvement of journalism in its editorial management and the establishment of those kindly and generous feelings, relationship and understandings, calculated not only to insure purity of thought and expression, but forever debar and make disreputable all violations of the strictest rules of propriety in any connection.

During the session numerous matters of interest were passed upon, the constitution amended so as to admit to membership in the association all editors and *duly accredited reporters and correspondents* of journals of acknowledged respectability.

A "Scrap Book" containing the history of the organization, from its inception up to the present time, was presented by Mr. W. P. Bartlett, on behalf of the donor, Mr. N. C. Hanks of the *Pacific Specimen*, which was received with thanks by the association.

The office of Historian, to be combined with that of the Corresponding Secretary, was created; and for the purpose of preserving a complete historical record, it was ordered that all adverse criticisms of the organization, by the press of this State, shall also be placed in the Scrap Book for future reference.

The Executive Committee was instructed to make all necessary arrangements for a grand excursion at the close of the Annual Session of 1882, to the Geysers, and through Sonoma and Lake counties.

The election of officers for the ensuing year resulted as follows:

President, Wm. Saunders of the Woodland *Democrat*.

First Vice-President, W. P. Bartlett of the Livermore *Herald*.

Second Vice-President, John S. Hayes of the *Pacific Coast*, Holister.

Secretary, Wm. H. Barnes, *Weekly Call*, San Francisco.

Corresponding Secretary and Historian, N. C. Hanks of the *Pacific Specimen*.

Treasurer, J. E. Wolfe, *California Architect and Building Review*.

Executive Committee, S. Cassidy of the Petaluma *Argus*, L. M. Holt of the Riverside *Press*, and F. F. Carnduff of the Biggs *Record*.

Great harmony and pleasant intercourse prevailed throughout the entire session, and the occasion as a whole was a gratifying success.

WE promised in our last to say a few words regarding the inventions of Mr. Dénéchaud. The few remarks following will apply to inventions in general. Many good inventions fail of profitable recognition because they are premature. They propose innovations which existing prejudices will not sanction, and are consequently regarded for the time being as impracticable or visionary. All such must bide their time. Railroad men as a class are not prejudiced against alleged improvements because they are patented, but it is possible that many good inventions of this kind remain for a time unrecognized from sheer inability on the part of the roads to discriminate by actual test between what is valuable and what is worthless. They must have some evidence of the merits of devices that are brought to their attention, aside from the representations of inventors and patentees. A mere statement of what is claimed in their behalf by interested parties, even when it is supported by a string of first class testimonials, does not produce a very stunning impression upon superintendents and managers, nor do they want in such cases an elaborate estimate of hypothetical savings. They want to know just how the device will work in practice. The saving it will accomplish they can figure up at their leisure, or if they do not figure it at all it will be none the less on that account.

We are requested to announce to our readers that the firm of Bicknell & Comstock, of N. Y., is dissolved by mutual consent. The business hereafter will be carried on the same as heretofore by Mr. William T. Comstock, who has been known as a member of the firm for the past four years, and who is thoroughly conversant with the business.

We understand that Mr. Bicknell will, for a time, retire from active business, as the close confinement to it for the past sixteen years renders it judicious for him to take a season of rest.

For the present his office address will be the same as heretofore.

A BEAUTIFUL COMPLIMENT TO THE PHYSICIAN.—I dare not place any gift, however beautiful, or any success, however brilliant, above the talent or the skill which can relieve a single pang, and the self-devotion which lays them at the feet of the humblest fellow-creature.—*Oliver Wendell Holmes.*

Market Reports.

LUMBER.—The receipts up to date of this year are largely exceeding those of 1880. From our many exchanges we notice that mills in the northern part of the State are very busy. The local mills that are dotted here and there all over the State report that they have all the orders they can fill. We report an increased activity in demand, with no changes in prices as yet.

Receipts since January 1st:

Lumber	83,337,494
Shingles	22,174,110
Laths	7,600,200

Since May 1st there has been exported over a million and a half feet, of the value of about $35,000.

A correct price list of lumber will be found below

Pine.

Common Rough, up to 40 feet, per M feet	$21 00
" 41 to 50 " "	22 00
" 51 to 60 " "	23 00
" 61 to 70 " "	25 00
" 71 to 80 " "	27 00
Refuse Rough	17 00
Common Rough, sized with planer $2 additional on above rates, per M feet.	
No. 1 Flooring, 6 inches and over, "	28 00
" 4 " and under, and 1¼x4 and 1¼x6 Flooring and Stepping "	30 00
Rough Clear for Flooring, $1 00 less than above rates.	
Second Quality Flooring and Stepping, per M feet	22 50
Ship Plank, Rough per M feet	26 00
" Planed 1 side "	30 00
" " 2 sides "	32 00
Deck Plank, Rough "	31 00
" Dressed "	35 00
Laths per M	3 50
Wool Slats "	10 00
Shakes "	9 00
Redwood Posts per piece	11

Redwood.

Rough Merchantable per M feet	21 00
" Refuse "	17 00
Surface No. 1 "	32 50
" 1 x 6 "	30 00
" No. 2 "	25 00
Rustic, No. 1, 1 x 8 "	30 00
" No. 1, 1 x 10 "	32 50
" No. 2 "	27 50
" under 10 feet "	27 50
T. & G., 1¼ x 4 and 1¼ x 6 "	32 50
" 6 in, 12 ft and over "	30 00
" " 7 to 11 feet "	28 00
" " under 7 feet "	25 00
" No 2 "	25 00
T. & G., Beaded, 12 ft & over, per M feet	32 50
" " 7 to 11 feet "	28 00
" " under 7 feet "	25 00
Half-inch Surface "	27 50
Pickets, Fancy "	25 00
" Rough, pointed "	18 00
" " square "	15 00
Siding, ½ inch "	22 50
Shingles per M	2 25
Battens, ¼-inch, lineal feet "	4c

NAILS.—The demand is more active, and a slight advance in price is noted. Since January 1st we have imported 89,791 kegs.

10 to 60 pennies, are quoted at	$3 75
8 " "	4 00
6 " "	4 25
5 and 4 " "	4 50
4 and 5 pennies, brad heads, at	5 00
6 " "	5 25
8 " "	5 00
10 and upward "	4 75
3 penny fines "	7 25

PAINTS AND OILS.—A full supply, with limited demand, and no change in prices.

BUILDING INTELLIGENCE.

Our report is much larger in point of numbers than the preceding month. It will be noticed that the greater part of the buildings in our list are of very medium price. We have received reports from a great many places saying, that there were many buildings in course of erection, but unaccompanied by name of owner or cost price. Our friends all over the country ought to take pride in helping us to build up this part of our journal, so that we can lay before our readers an accurate and complete list of buildings that are being erected in every part of the State.

SAN FRANCISCO.

Four-story brick building with basement on the N. W. cor. Pine and Davis. Size 137½x137½. Owner, A. J. McCreery. Architects, Wright and Sanders. Brickwork, ——Worrall; carpenter work, Moffat. Total cost about $150,000.

Two-story, basement and mansard, frame building on corner of Franklin and Washington sts. Owner, L. L. Baker. Architects, Curlett & Eisen; brick foundation, Watterson & McGuire; approximate cost, $40,000.

Old Ladies' Home on Masonic avenue between Turk street and Point Lobos Road. Three stories

with basement. Architect, T. J. Welsh. Brick-work for foundation——McGowan & Butler. Day's work. Probable cost, $60,000.

Two-story building for S. F. Glass Works on Berry st., between 4th and 5th sts. Owner, Newman. Day's work. Cost, $50,000.

Two-story dwelling on corner Jackson and Fillmore sts. Owner, Capt. Von Bergen. Architects, S. and J. C. Newson. Day's work. Cost $20,000.

Frame dwelling, two story and attic, on the N. W. corner of Vallejo and Octavia. Owner, J. M. Martin. Architects, Percy & Hamilton. Contractor, H. S. Gray. Cost, $4,400.

Two-story, rough basement and attic, frame dwelling, on N. side Pacific avenue, west of Steiner. Owner, Chas. E. Heise. Architects, Percy & Hamilton. Contractors, F. H. Powell, and J. B. Cogswell. Cost, $5,400.

Three two-story frame dwellings on 19th st., between Valencia and Guerrero. Owner, G. Edwards. Contractor, J. W. Wilcox. Cost, $6,000.

Two-story frame dwelling on Van Ness Avenue, near Grove st. Owner, Mrs. Mercer. Architect, T. J. Welsh. Carpenter work, J. Furness. Cost, $5,000.

Two-story frame dwelling on S. side of Jackson st., between Polk and Van Ness avenue. Owner, E. W. McCarthy. Architect, T. J. Welsh. Carpenter work, R. Doyle. Cost, $4,000.

Cemetery improvements for the Bayliss estate. Architect, T. J. Welsh. Contractor, M. Roth. Cost, $620.

Clemintina st., east of 4th; additions to building. Owner, P. J. Soamps. Days work. Cost, $1,000.

One-story and basement frame dwelling on Baker st., between Bush and Pine. Owner, Mrs. Johnston. Contractor, Fred Richtor. Cost, about $1,000.

Repairs and alterations to buildings on corner 5th and Harrison sts. Owner, C. Vallet. Contractor,——Stratton. Cost, $800.

One-story frame dwelling on Waller st., between Fillmore and Steiner. Owner——McIntyre. Architect, Mooser. Contractor, F. Gauterau. Cost, $1,300.

Additions to building on 20th st., near Guerrero. Owner, John Downing. Contractors, Moore Bros. Cost, $1,400.

Improvements to building on corner of 14th and Noe sts. Owner, Joost Bros. Day's work. Cost, $1,500.

Two-story frame building on 24th st., near Guerrero. Owner,——Mecker. Contractor,——Girvin. Cost, $2,000.

One-story cottage on 24th st., near Guerrero. Owner, ——Mecker. Contractor, ——Girvin. Cost, $1,500.

Additions to building on corner 17th and Dolores. Owner, J. Flach. Contractors, Terrill & Slaven. Cost $2,500.

Cottage on Alabama st., between 25th and 26th. Owner, L. J. Lucas. Day's work. Cost $600.

One-story and basement frame building on Harrison and 25th sts. Owner, Slaven. Day's work. Cost, $1,000.

Fitting up offices in building corner Davis and California sts. Owner, Levy & Co. Contractors, Bowles & Darrow. Cost, $800.

Two-story frame dwelling with stores, on N. side of Howard, between 6th and 7th sts. Owner, John Beck Architect, H. Geilfuss. Contractor, F. Klatt. Cost, $4,000.

Bakery with dwelling above, near corner of Rail Road Avenue and 13th avenue. Owner, Fred. Meyer. Architect, Zimmerman. Carpenter work, C. E. Dunshee. Brickwork, F. Mendel. Cost, $3,250.

Two-story frame double tenement on Ellis st, between Fillmore and Webster. Owner, G. A. Friermuth. Architects, B. McDougall & Son. Contractors, Norton & Walker. Cost $3,700.

Two-story dwelling on Geary st., between Scott and Devisadero. Owner, W. F. Perkins. Architects, B. McDougall & Son. Contractors, Terrill & Slaven. Cost $2,000.

Improvements and alterations to Bush St. M. E. Church, on Bush st., between Scott and Devisadero. Architect, B. McDougall & Son. Day's Work. Total cost about $4,000.

Repairs on building on 4th st., between Harrison and Folsom. Owner, Sam Abrams. Architects, Curlett & Eisen. Contractor, Morriss.

Alterations to school-house on corner of Noe and Temple sts. Architects, Curlett & Eisen. Contractor, D. Perry. Cost, $4,800.

School-house corner Clement avenue and Jefferson st. Architects, Curlett & Eisen. Contractor, L. Larribee. Cost, $4,175.

Store and dwelling on corner Leavenworth and Glover sts. Owner, —— Reilly. Architect, —— Cuthbertson. Contractor, Hodgkins. Cost, $2,700.

Additions and alterations to building on corner of 4th and Townsend. Owner, Mrs. Knowl. Contractor, Jos. Dutton. Cost, $3,000.

Additions and alterations to building on Clara st., between 3rd and 4th. Owner, Mrs. Coleman. Contractor, Jos. Dutton. Cost, $1,000.

Two-story dwelling on Mission st., near 18th. Owner, —— Dowdall. Contractor, J. Blake. Cost, $2,200.

One-story building on Hayes st. near Octavia. Owner, S. Weilheimer. Architects, Kenitzer & Raun. Contractor, Chisholm. Cost ——.

One-story frame dwelling on 15th avenue, between R. R. avenue, and M. st. Owner and builder, Dwyer.

Alterations and improvements to building on 10th avenue, between R. R. avenue and M. sts. Owner, J. Beatty. Cost, $800.

Cor. R. R. ave. and 15th ave. Alterations and improvements. Owner, H. Dieckman. Day's work.

One-story frame dwelling on corner 6th avenue and L st. Owner, J. G. Johnson. Contractor, T. Parkinson. Cost, $1,400.

Water works on Perry st, near 4th. Owner, Judge Hastings. Contractor, F. Crowley. Cost, about $10,000.

Barn on 25th st., near Sanchez. Owner, —— Bushwell. Contractor, Wilcox. Cost, $400.

Air tight niches in the receiving vault of Masonic Cemetery. Architects, Huerne & Henriksen. Contractor, Jos. Thornhill. Cost, $1,500.

Addition to building 110 and 112 Beale st.

BERKELEY.

Two story frame building on corner University avenue and San Pablo avenue. Lower part for stores, upper part for Odd Fellows Hall. Owner, —— Fredericks. Cost, ——.

Two story frame dwelling on Virginia street, near Shattuck. Owner, S. H. Littlejohn. Contractor, C. R. Lord. Cost, $2,500.

Cottage on Pine street, near Channingway. Owner, Thos. Graber. Contractor, John Fones. Cost, $1,300.

One and half story dwelling on Bancroft way, near Choate street. Owner, W. H. Chapman. Contractor, B. C. Alleyn. Cost, $1,500.

Cottage on Arch street, near Vine. Owner, Mrs. A. C. Aiken. Builder, W. C. Aiken. Cost, $2,000.

ALAMEDA.

One story and basement residence, on Central avenue near Grand street. Owner, Madame Deppen. Contractor, D. Straub. Cost, $2,000.

Cottage on corner of Oak street and San Antonio avenue. Owner, Mrs. Everett. Builders, Gilbert & Brown. Cost, $2,200.

Two story frame dwelling on Santa Clara avenue, between Union and La Fayette streets. Owner, Gen. W. H. Carpentier. Builders, Gilbert & Brown.

OAKLAND.

Two story dwelling on East side of Adeline, between 16th and 17th streets. Owner, C. H. Schieffer. Architect, Chas. Mau. Contractor, Haskell, Smilie & Co. Cost, about $4,800.

Corner 11th and Grove, repairs and additions. Owner and Builder, Larose. Cost, ——.

Alterations and additions to dwelling on 9th street, between Castro and Grove. Owner, G. Frank Smith. Day's work. Cost about $1,700.

BODIE.

Two story brick warehouse, 40x75 feet. Owners Wheaton & Luhrs. Architects, H. Geilfuss. Day's work. Cost about $7,000.

LIVERMORE.

Pastoral residence for Rev. P. Powers. Architect, T. J. Welsh. Contractors, Jeffars & McCann. Cost, $3,000.

HANFORD, TULARE COUNTY.

Two-story brick building. Owner, J. T. Baker. Architect, W. Scrof. Cost, $4,500.

Brick store. Owners, S. Jacobs & Co. Architect, W. Scrof. Cost, $3,500.

MENLO PARK.

Laundry, dairy, stables, etc. Owner, J. C. Flood. Architect, A. Laver. Builder, C. Ackerson. Day's work.

CONTRA COSTA CO.

Two bridges for Daniel Cook. Architect, A. Laver. Builder, C. Ackerson. Day's work.

PETALUMA.

One-story brick building on Main street. Owner, W. P. Henshaw. Architects, Huerne & Henriksen.

Improvements and Additions to brick buildings on Main street. Owner, Festus Needham. Architects, Huerne & Henriksen.

HAYWARDS.

Two-story dwelling, with stable. Owner, Ira H. Chapman. Architects, S. and J. C. Newson. Contractors, Holt & Son. Cost, $5,000.

VALLEJO.

Additions to building on corner of York and Sonoma streets. Contractor, Wm. Brownlie. Cost, $4,000.

BOISE CITY.

Two-story brick and stone school building, with Mansard roof. Architects, Curlett & Eisen. Contractor T. J. Hamilton. Cost, $4,800.

Publication Notices.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

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Mechanics' Lien Law.

"Mechanics, material men, artizans, and laborers of every class, shall have a lien upon the property upon which they have bestowed labor or furnished material, for the value of such labor done and material furnished; and the Legislature shall provide by law for the speedy and efficient enforcement of such liens."—Constitution.

"Mechanics, material men, artizans, architects, and laborers of every class, performing labor upon or furnishing material to, or used in the construction, alteration, or repair of any mining claim, building, wharf, bridge, ditch, flume, aqueduct, tunnel, fence, machinery, railroad, wagon road, or other structure, shall have a lien upon the property upon which they have bestowed labor or furnished material for the value of such labor done and material furnished. This lien shall not be affected by the fact that no money is due, or to become due, on any contract made by the owner with any other party.

"The land upon which any building, improvement, or structure is constructed, together with a convenient space about the same, is also subject to the lien. The liens provided for in this chapter are preferred to any lien, mortgage, or other incumbrance which may have attached subsequent to the time when the building, improvement, or structure was commenced, work done, or materials were commenced to be furnished; also to any lien, mortgage, or other incumbrance, of which the lien-holder had no notice, and which was unrecorded at the time the building, improvement, or structure was commenced, work done, or the materials were commenced to be furnished.

"Every original contractor, within sixty days after the completion of his contract, and every person save the original contractor, claiming the benefit of this chapter, must, within thirty days after the completion of any building, improvement, or structure, or after the completion of the alteration or repair thereof, or the performance of any labor in a mining claim, file for record with the County Recorder of the county in which such property or some part thereof is situated, a claim containing a statement of his demand after deducting all just credits and offsets, with the name of the owner, or reputed owner, if known, and also the name of the person by whom he was employed, or to whom he furnished the materials, with a statement of the items, time given, and conditions of his contract; and also a description of the property to be charged with the lien, sufficient for identification, which claim must be verified by the oath of himself, or of some other person.

"No lien provided for in this chapter binds any building, mining claim, improvement, or structure for a longer period than ninety days after the same has been filed, unless proceedings be commenced in a proper court within that time to enforce the same, or if a credit be given, then ninety days after the expiration of such credit; but no lien continues in force for a longer time than two years from the time work is completed by any agreement to give credit."—Statute.

The California Architect and Building Review.

VOLUME II. NUMBER 7. } SAN FRANCISCO, JULY, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect
—— AND ——
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE
SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered, at the Post Office at San Francisco, Cal., as second-class matter.

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion..... $1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion..... 1 25
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Our Enlargement and Improvement—No. I.

It is with feelings of great satisfaction and pleasure that we direct the especial attention of our readers to the marked improvement shown in the present issue of this journal.

Four additional pages have been added; also, *six plate*, or illustration pages, instead of three and four as heretofore, and new and larger type. All this is the result of the liberal encouragement received, and the determination on our part, as heretofore announced, that improvements should appear hand in hand with the increase of subscription and advertising patronage. And having to this extent redeemed the promises made in previous issues, nothing shall be left undone to make it worthy of still greater encouragement, with the hope that the efforts put forth to establish in San Francisco a journal of high merit and superior excellence, will receive that cordial and hearty subscription co-operation, support and indorsement from all architects, contractors, owners of real estate, mechanics in all branches, and the entire people of this western slope of our great country—which will enable us to perfect in splendid style all that has been and is contemplated by the management of this journal.

And as an inducement to friends at home and abroad to lend the helping hand in doubling up our subscription list, we promise—life being spared—another and greater improvement in the first issue of 1882. Let this assurance stimulate interest on the part of every reader of this journal—particularly here in San Francisco and upon the Pacific Coast—so that thousands more may add their subscriptions, thereby enabling the greater improvements in its every department, and making it a credit to the city of its publication.

We have repeatedly stated and mean it, that this enterprise was not started merely for purposes of personal gains and profits, but to establish a publication in the interest of the architectural profession, mechanical operations, sanitary sciences, the proper construction of buildings, etc., etc., which would render it invaluable to every man or woman who either plans, erects, owns, or lives in a building of any class, character, or description. Consequently, we appeal to all such, asking that our subscription-list be enlarged and extended, until the possibilities of printing and distribution shall be exhausted.

While greater success will be more remunerative to us, it will also insure to our patrons a journal of superior excellence; for with the means at command, every facility known in the typographical and printing arts, and every known and available process and facility in the production of splendid cuts and illustrations, will be secured; to the end that San Francisco—the much-abused and misrepresented city—may become the place of publication for one of the intrinsically, mechanically and editorially, most valuable journals published in the English language.

While we have not the slightest idea that our past efforts have approached perfection, or been beyond criticism, it is a pleasing reflection that, during the two and one-half years of this journal's existence, not a single unfavorable notice has come to us through the columns of papers published on this coast, or in the Eastern States; but on the other hand, hundreds of most favorable, and sometimes very flattering notices have appeared. We hope to continue the good esteem of all contemporaries, both at home and abroad, and extend to them the free use of all matter appearing in our columns, simply asking due credit in return.

The apology we offer for the defects in our illustrations hitherto, have been in part at least beyond our control. To produce them in as good shape as we desire would cost more for each issue than the whole typographical and printing work, while eastern journals have at their command numerous processes which produce excellent cuts at comparatively small cost. But with the help of our friends, and the increase of receipts, all this will in time be overcome and regulated satisfactorily.

The Pacific Coast Association of Architects.

The regular meeting of the Association was held on the afternoon of first Friday in July. The attendance was not large, owing to the fact that the *time and place* of meeting was not rightly understood by many of the members, some of whom have since expressed to us their regret and disappointment at mistaking the hour of meeting as eight, instead of two, P. M. A committee was appointed at the late meeting to make permanent arrangements, both as to time and place, which, if done in time, will be noticed in this issue. We hope members of the profession will inform themselves fully and correctly upon this point, and all be present at the next and all succeeding meetings.

The meeting was called to order by the President, Mr. Laver. After the disposal of such matters as claimed the attention of the Association, Mr. Laver read the very interesting and instructive address which appears in full in this journal, and which contains many excellent suggestions which should be read and pondered over, not only by architects, but by all who are in any manner interested in the purity of architecture, or the erection of edifices and structures of any description.

The Association manifested its appreciation of Mr. Laver's effort, by ordering, in addition to its publication in full in this journal, the printing of 500 copies in pamphlet form.

The proceedings were of the most harmonious and pleasing character, and great satisfaction was expressed by those in attendance. At the next meeting—*first Friday in August*—the discussion of important matters in connection with the profession will occupy the time of the Association.

All question as to the success and perpetuity of the Association was set at rest by the tone, spirit, and vitality manifest at the recent meeting; provided the members meet in encouraging numbers, and practice the goodly feeling and earnest interest manifested on that occasion. All that is necessary to the permanent establishment of a large and influential Architectural Association upon this coast is, that the members of the profession join heart and hand in the work, and pursue a course sustained by intelligent and honorable understandings, personally, professionally, and in society affiliations.

Read the Last Paragraph Particularly.

ARCHITECTS, CONTRACTORS, CARPENTERS, BRICK MASONS, PAINTERS, PLUMBERS, AND ALL OTHER BUILDING OPERATIVES, MECHANICS ENGAGED IN OTHER MECHANICAL PURSUITS, OWNERS OF REAL ESTATE, and all TENANTS OF HOUSES without distinction, within the range of our circulation, which reaches all parts of this coast and east of the Rocky Mountains, and many parts of foreign countries, who do not subscribe for this journal, deprive themselves of a valuable medium of instruction and information. It is pronounced by thousands to be worthy of liberal support, yet it is far from what we intend to make it when our subscription list shall include or exceed TWENTY THOUSAND paying subscribers.

We call upon one and all of our patrons to lend their assistance in consummating the results intended; and in return, we will produce monthly, and if found advisable, semi-monthly, or weekly, a journal which none shall surpass.

The energy, understanding of necessities, and determination requisite are in reserve, and will be brought into practice as soon and as rapidly as our high subscription hopes, aims, and expectations are reached.

We prefer publishing a journal of this character, with 20,000 to 100,000 subscribers, to being a San Francisco Supervisor, or architect of the New City Hall, which John Clifford, in his cause of action against Drake, of Chicago, stated to be worth a quarter million of dollars. Query:—If an architect could make $250,000 by a professional engagement, on a salary of $150 to $200 per month, what would be his age by the time he secured that amount, deducting current living expenses, provided he acted honestly and did no stealing? and how many centuries would it require to complete San Francisco's "big elephant"? At a lay-up of $600 annually, more than 151,840 setting suns would pass over his head, and sink beneath the western horizon, before John C. would "pass in his checks," or the finishing touch be applied to the city's head-quarters.

THE demand for bound volumes of this journal for 1880 has been such that we have had 500 additional copies bound, which we will send to any address at the reduced price of $2.00 per volume.

Not too Much to Say or Ask.

There is no good reason why this should not become one of the most prominent journals in the United States; representing, as it does, the entire Pacific Coast in all matters connected with the architectural profession, building interests, sanitary and mechanical sciences, and the resources of this God-blessed heritage—the western slope of our common country.

Thus far but one sentiment has been expressed, and that is, that such a journal is greatly needed in this section of country—that the CALIFORNIA ARCHITECT AND BUILDING REVIEW has fairly and well filled this necessity, notwithstanding the adverse circumstances which have thus far rendered it less valuable and interesting than it would have been under more favorable conditions, and much less than it will hereafter be, as we intend to press it up to a high standing among the journals of its class, as rapidly as may be possible.

We contemplate and promise such enlargements and improvements as will render it unexceptionally excellent in all of its departments, and all we ask in return is a generous support coequal with its merits, and our efforts to make it satisfactorily good in all respects.

Picked Up the Trade.

Yes, a great many people "pick up trades"; and more generally, after following them for a quarter of a century, more or less, make but poor apologies for workmen. This picking up trades is somewhat like a lad commencing his studies in arithmetic at the compound numbers without any prior knowledge of the rudiments or value of figures. The one never becomes proficient; nor the other, as a rule, competent as a mechanic. Occasionally, when a man has reached the years of maturity, he may attain considerable proficiency in any pursuit to which he with diligence applies himself, provided he possesses the will and determination to succeed in his attempts at new acquisitions. But diligence alone will not secure success, unless accompanied by determination and purpose. In some, the trait of character understood by the term "natural genius," develops itself, which controlled by strength of purpose and good judgment, helps the possessor wonderfully. To get *up* stream against a more or less rapidly descending current requires not only that the boatman shall be strong of arm and muscle, but equally so of will and purpose; and even these *possessed* yet *unapplied*, avails but little. The powers in men must be brought into exercise to render them valuable. And it is only when all these, or to the extent to which they are applied, do men become competent. In but few cases comparatively, do men reach a good reputation in any pursuit picked up during the years of maturity, witho t the advantages, discipline, and training experienced in and by years of apprenticeship. In all things the mind must be schooled and educated, and by degrees led to perfected understandings; and it is a law of our humanity that the early years of life is the better and proper time to begin the educations which are to control the future. True, sometimes men are endowed with—or inherit—special and natural fitness in certain directions; and although circumstances may for a time prevent their development, whenever opportunities offer more than ordinary results follow. But as a rule, apprenticeship servitude and training is a prerequisite to mechanical proficiencies. The reasons are obvious: but few men are so constituted that they can or will bend their manhood views of life's work to become boys again. Maturity of years brings also maturity of conceptions and ambitions, and the "little things" which are so essential in perfecting a mechanical education, and which boys in apprenticeship are forced to observe and practice, are lost to those who "pick up" a trade during the years of manhood. We do not condemn, but rather applaud the ambitions of those who seek the avenues of mechanism, for the purpose of bettering their conditions, or as far as possible retrieving the lost opportunities of early life; but it is inconsistent with the order of things, as expressed in every law and rule of human reason and experience, to suppose that those who fail to receive the preliminary training of apprenticeship in any line of mechanism, can incidentally secure to themselves that deep and thorough knowledge of practical mechanical art and science, which those possess who commence at the right period, and pass through all the cultivating and maturing stages which fit and qualify the perfect mechanic.

A New York "Tinker Plumbing" Trick.

We have seen some "awfully" bad plumbing work done in San Francisco, and known of tricks of the most rascally character being played, but nothing to surpass in absolute mechanical villany the following. We find the story related in a recent number of the *Sanitary Engineer*, which says: "Strange as it may seem, the soil-pipe for one floor, or that portion of it running from the first to the second floor, was made of old tomato-cans, soldered together. Then, from the second to the third floor, a two-inch sheet-tin pipe was run to take the drainage from a sink. Our readers will not be surprised at the assertion of the occupant of the store, that he was 'stunk out of the place.' To a plumber there certainly could be no saving in using tomato-cans for soil-pipe, as the labor was considerable. It seems the man who did this job was a tinker, and he either did not know how cheap iron soil-pipes were, or else realized he was unable to put them up, and felt competent to solder the tin cans, which he doubtless got from the ash-box for nothing. The cost of the solder consumed was probably the only expense he reckoned, the labor not being an item in his calculation. This statement will seem improbable to many of our readers, but we can assure them that this novel soil-pipe has been brought to us by Mr. James Muir, one of the best-known plumbers in this city, whose men discovered it as above related. The trap was made in the same way, but was destroyed in taking it out."

If any of the readers of this journal can produce a more rascally example of dishonest practice in San Francisco, we shall be glad to hear from them, and shall not be greatly surprised at any statement that may be made; for we have seen so many bad things in the plumbing line that we are beyond the reach of absolute doubt. Still, with thousands of examples of similar character before them, seven-tenths of the owners of buildings will hunt around to find just such mechanical frauds, preferring to pay them small prices for their *worthless* work, rather than employ really competent and reliable *mechanics*, at *fair* compensation. The illustration of "*wretched plumbing work*" analyzed, will, in a majority of cases, develop the fact that they are the outcome of a disposition on the part of the paying parties to economize outlay. Fifty to one hundred per cent. is a reasonable range or limit between the respective cost of ordinary good class of plumbing work and tinkerism; and results are always proportionate to the grade of plumbers employed. Sometimes, however, the better class of plumbers turn out imperfect work, because, to secure work in some cases, they are "beat down" in their prices, either by personal propositions, or rabble competition; and upon the principle that self-preservation is the first law of nature, under such circumstances, economies are introduced wherever possible.

Send for a copy of the "Steel Square and its Uses," handsomely bound and illustrated. Price 75 cts.

Architectural Competitions.

NUMBER III.

In our last we referred to a third class, to which we would draw attention. We mean those to whom competition has been lamentably disappointing, and who have been tempted by the allurements of the competition system to give up promising appointments in established offices which have been filled by others, who in their turn also have been drawn away in a similar manner, until the profession has been in a measure overrun with quite an army of men, in many cases not possessing sufficient power to command success in competition, nor sufficient practical knowledge and experience to be useful in other than very inferior positions as architectural draughtsmen. And it is among this class that we find the effect of competition is never to encourage the generous sympathies of competitors, but always to provoke envy, false hope, and self-conceit insufferable. There is more heart-burning among these would-be architects, caused by their failures in competing for designs, than is caused by the result of competitions in any other profession.

So far, we have seen that the firmer maintenance of the competition system lies in the supposition, that modest merit can thus obtain its reward. This we hold to be an utter fallacy. Modesty will wait; it is immodesty that will not. Merit can wait; it is demerit that cannot. The man who in professional life is the most fortunate, is he who starts without false aids, without fallacious incentives, without self-conceit, and without hurry. Waiting patiently, working diligently, and walking uprightly, until he has reached the age of matured usefulness, he then attains that position which matured usefulness alone can permanently hold, because it alone is worthy to hold it. In plain language—at the age of forty, which is recognized as the earliest at which a man may expect to acquire a position in a profession as distinguished from a trade, he finds himself beginning to know the world well; youth has passed into full manhood, and he has five and twenty years before him during which to employ his energies at their best, and to win respect for a meritorious old age. What does such a man want with competitions? What can he gain by them?

Our concluding article upon the subject under consideration will appear in our August number, and will be confined to *competitions in California.*

Castings.

Castings seem to take to themselves peculiar freaks of irregularities, the causes being difficult to define. They occur sometimes in the sand, sometimes in ramming, sometimes in venting, and often with wrong facings. For instance, the quality of facing sand must always be graded, according to the casting to be made, heavy or light, deep or shallow in the mold. Again, inferior coal in facing sands is detrimental. Possibly the dealer in foundry facings has been grinding inferior stock, instead of getting a carbon in the form of coal-dust to stand the iron pouring against the mold. There has been dirt and slate ground in with the coal. This is a cause of scabby castings, together with two fine a sand, or a sand without body, which all molders dread, except for very light work. If molders could only have good sands, good irons, and good facings, and the same stock supplied each time, there would be little need of complaint; but the geology of our country is not such as to admit of digging molding-sand at every foundry back-door, when molding-sand costs from $40 to $50 a car delivered in a foundry-yard, as we know it does in many instances.—*Amer. Machinist.*

Pacific Coast Association of Architects.

After the introductory remarks make by Augustus Laver, the first President of the Association, thanking the Fellows and Associate Members for the honor they had been pleased to confer on him, the following lecture on "In What Architecture Consists," was delivered by Mr. Laver at the rooms of the association.

San Francisco, July 1st, 1881.

Fellows and Associates of the P. C. A. A.:

Architecture is generally defined to be "the Art of Building," but this definition does not carry with it a sufficiently positive and extended meaning. If the art of building be considered relative to Architecture, it is nothing more than construction, and if it be considered relative to our wants, it appertains to all ages, and to all countries; but the art of Architecture, far from being common to all ages and nations, is confined to a few centuries, and only a few privileged countries, and ought to be defined, "The art of building according to certain rules and proportions, determined by natural causes, and the perfected faculties of man." The art of building is found amongst all savage nations, but the art of Architecture can only be the result of society enlightened by civilization and mother arts.

It is an art that requires great judgment and diversity of studies to enable a connoisseur to form correct opinions of the works of others, and is acquired by theory and practice.

The theory of Architecture is that knowledge of it acquired by the study of the remains of antiquity, by the writings of the most learned authors, and by meditation.

The practice is the knowledge which is gained by the executing and conducting of buildings.

The etymology of the word Architect indicates that the person thus designated is the inspector and chief of those employed in the erection of edifices, and that he has the general direction of the works, and their execution, which supposes a union of rare qualities and very extended knowledge.

When we consider the time required for the study of Architecture, the necessary expense incurred, and the various difficulties incident to the attaining of that degree of talent which warrants the assumption of the title of Architect, how unimportant the remuneration it presents to those who follow it as a profession, notwithstanding that its *utility* doubtless ranks it first amongst the arts.

Furnish a painter with a small piece of canvas, pencils, and a few colors, and if he be a talented artist, he will in a short time produce a painting of considerable value, his fame and fortune resting entirely within the power of his pencil, because he is unfettered, and has only to closely study nature in all her beauties, and reproduce them on canvas.

With the Architect it is very different; he is often fettered by some peculiarity in the site; or by the requirements of the building he is called upon to produce, or by the qualities of the materials to be used in the construction, and it may be by the idiosyncrasies of his client; and hence, in order to appreciate or criticise any work, no matter how extensive or insignificant, an intimate knowledge not only of the art itself is required, but also of all the circumstances incident to the production of the design. These remarks are pertinent to the course often adopted in the selection of designs submitted in competition—far too often, I regret to say—that the judges are totally incompetent for the task set before them, and the man of talent is driven away to make room for the patronized, and therefore arise those productions which are found so unworthy of being transmitted to posterity.

Literary knowledge and history are much more requisite to the modern than they were to the ancient Architect.

Vitruvius required that an Architect should be able to assign a satisfactory reason for the employment of every architectural object which his design might present.

How much more indispensable, then, are these studies at the present day, since by the adoptions we may make of the antique Architecture, an Architect finds himself perpetually necessitated to employ an infinity of parts or ornaments, the common and parasite use of which can only be ridiculous, if not directed by an enlightened and judicious mind.

The knowledge of history, as it includes that of Architecture, discloses the revolutions of an art which, more than any other, is linked to the destiny of the nations that employ it.

In following its origin, progress, and decadency, the student will distinguish the changes of taste, and varieties of style, adopted in different ages by different nations, and he will habituate himself to the discernment which the monuments of antiquity require, and the studies he ought to deduce from them.

To a thorough conception of Architecture there should also be added an intimate knowledge of sculpture and painting.

It is astonishing to contemplate how great a number there were of the celebrated ancient Architects, who to a proficiency in Architecture united a superiority in the other arts, of which it is rare in the present day to attain eminence in one.

Without going so far back as to the Greeks and Romans, we find this union of superior talents in individuals in the flourishing centuries of modern Italy.

To make a just enumeration of these Architects would be almost to except none.

It was as rare at that time to possess but one art, as it is in our day to possess more than one.

It would form too long a list to mention all the early celebrated painters and sculptors, who also possessed, to a very high degree, a knowledge and taste in Architecture, and who have left posterity in doubt under which of the arts their names ought to be particularly inscribed.

Amongst these are Giotto, Michael Angelo, Domenichino, Raffaelo, etc. Opposite to this list may be placed the great masters in Architecture, who, to a knowledge of that art, united in a more or less eminent degree a practical knowledge of the other arts, at the head of which stand Brunelleschi and Ammanati, who left more than one monument of their knowledge of sculpture; Sansovino, Palladio, and San Gallo, who were equally able sculptors; Bramante, Vignola, Alberti, and many others, who exercised in turn the pencil and the compass.

It may be proved that there exist few beautiful architectural productions which are not the result of a combined knowledge of the arts in those who were their authors. The reason of this union of the arts, formerly so common, but at the present day so rare, was, that in former times one spirit presided over the arts, one chain connected them, and this common bond was drawing on a practical knowledge of proportions which form the basis of Architecture, Sculpture, and Painting.

By consulting the memoirs of the lives of the celebrated artists of that period, the truth of what is here advanced will be discovered, namely, that their early education was the same, and that the most able Architects formed themselves in the school of the most eminent painters.

Architecture consists in forming an edifice or building so that it shall have all its parts in perfect relation to each other, and be of a convenable character, which is always determined by the uses for which it is intended.

A building which is convenient is one whose parts are such as its destination requires, and this destination determines the form of the plan, style, and sky-line of the exterior, the number and situation of the apartments, entrances, vestibules, halls, and approaches; and to add to the above, a judicious laying-out of the surrounding grounds will enhance the effects.

A well-proportioned building is one which in all the parts of its plan presents such harmony in its divisions that each portion has evidently an essential relation to the others, and in the projected elevations, it is necessary that the heights should be adapted to the length, and that the apertures should be supported by symmetrical and proportioned planes. The genius of art consists in having an eye for proportion, and it requires the deepest study with a correct taste.

But Architecture having necessity for its foundation, there results, first: That its beauty ought to imprint this character of necessity, and the necessity of all its parts ought to be apparent. Secondly: That the ornaments ought to be derived from the nature of the edifice itself, and result from the want which it might have of them. Hence to ascertain the merits of architectural compositions, the following rule may be advantageously employed:

Examine if each and every part separately and collectively unite to the greatest possible extent a characteristic expression of beauty, convenience, and real and apparent solidity.

Whoever adopts this rule, which is founded on reason, will neither be imposed upon by authority, celebrity, nor custom. They will also observe the following rules:

The first is of indispensable necessity in all kinds of buildings, and in each of their parts, and cannot be neglected without the risk of incurring censure; such as false bearings, planes over apertures, shapeless and misplaced pediments, penetration of pilasters, bastard orders, different orders in the same plan, or in projection; as also the most solid placed under the most delicate, or the heaviest under the lightest, without their intermediates. These are necessary deductions, drawn from the true principles of beauty, propriety, and solidity, which properties ought to be found in every building, and *not only exist*, but be apparent.

The relations of the dimensions in the orders are not of a precision that admit of no variation. What necessity is there, for example, that the Ionic columns should be exactly nine diameters high, or the metopes perfectly square? But it is only in case of necessity that these proportions should be deviated from, and care should be taken only to give them a latitude of certain circumference, and to endeavor to produce beauty by various means, at the same time being attentive to those invariable principles and necessary rules. the transgression of which can only produce wanderings that will serve rather to shock our ight than enlighten and conduct our reason.

The Architect, therefore, requires some judgment to enable him to determine *in all cases* the particular expression of character which his edifice should assume; how to dispose the accessories and adjacent

objects and surroundings; to overcome by fortunate inventions, according to the nature of the site; to give it a uniform yet varied appearance, and to prevent confusion in those parts where the different wants are found to be in opposition; to determine the size of the various parts according to the uses to which they are to be appropriated; and to distribute and reunite them in such a manner that each part will be found placed where it is most suitable or convenient, and that the whole will present both exteriorly and interiorly a convenient, solid, and beautiful edifice, analogous to its kind and destination.

No one part ought to predominate to the detriment of another; and while there is no appearance of excess, still nothing should be omitted that could be desired for its completion.

It will thus manifest the genius of the artist, and thus alone will it be beautiful in its details and total, and so much the more so in proportion as the total and its parts present distinctly, and at first glance, a free accordance and a combination that agreeably fixes the sight.

The appearance of such an edifice gives rise to an inexpressible pleasure and fascination in the beholder. It awakens in the mind exalted and enlarged ideas. The spectator feels those delightful emotions and agreeable transports which are excited by productions bearing real marks of superiority of mind. Thus there is one principle of architectural design which is indispensable: Fitness. In the works of the Great Architect, who has strewn the universe with his glorious and his beautiful creations, as far as our finite powers are able to gauge infinite wisdom, we find indubitable evidences of an intention to make all beauty subserve purposes of the highest but most practical utility. Ask the professors of different sciences whose pursuits are the investigation of various departments of nature, and the astronomer will tell you of the dependence of all heavenly bodies upon each other by influences so proportioned that any derangement would be felt throughout the universe; of gravity, which rules the planets in their courses and bows the snow-drop's pensive head; of the laws of light; of the succession of the seasons; and of the recurrence of the tides.

The natural philosopher will appeal to various phenomena, and will prove that the storm and the earthquake are not only grand, but beneficial in their influences, and promotive of new phases of beauty; that the thunder is not only awful and the lightning glorious, but that electricity is an active agent in promoting civilization and enterprise; that chemistry is ever engaged in decomposing existing bodies, when their sphere of usefulness is closed, in order to restore their elements to usefulness of another kind, perhaps to be graced by beauty most transcendent.

The geologist will tell us of animals which lived in former ages—the mastodon, the mighty megatherium, the plesiosaurus, and ichthyosaurus, and many others; the ammonite and the trilobite, having a resemblance to existing species modified by a regard to an antediluvian world: whilst the natural historian will refer to the works of the inferior animals, and will show how in the beaver-dam and the bee's honeycomb, the principle of fitness reigns paramount; and the traveler will speak of the Esquimaux's hut and the Arab's tent, which are constructed in obedience to its dictates.

Turn where we will, it is only in the architectural constructions of civilized man, that we find the most extraordinary discrepancies between the arrangements of a structure and its purposes.

Are, then, inconvenience and unfitness evidences of civilization, or are they rather to be regarded as proof of the forgetfulness of that instructive principle upon which all excellence must be based? Stated thus nakedly, the question can receive but one answer. Yet, how otherwise are we to account for the superiority of the beaver and the humble-bee. Much of the unfitness observable is due to the sickening cant with which the study of Architecture is overlaid. Each amateur, according to prejudices accidentally imbued, assumes that his favorite style embodies all excellence, and that others are barbarous substitutes; and the generality of the profession are either equally prejudiced, or are governed by the prejudices of their patrons, and can admire no excellence which is not recorded by Vitruvius, practiced by Palladio, or inculcated by the ecclesiologist, just as the whim may take them.

So long as Architects will not work out for themselves a standard of excellence—so long as they take their ideal from the whim of their patrons, and it is not the result of study and investigation—Architecture will continue as subject to the fluctuations of fashion as do costumes and the like, and the country will from time to time be overrun by a mania for the Classical, the Italian, or the Gothic styles, as time and chance may determine. If we glance at the course pursued by our early architectural predecessors, we shall find that they can be imitated with better effect by studying the spirit rather than the letter of their practice.

We find in the earlier ages, except when the art is in a manifestly transition state between two styles, that it is uniformly governed in its main characteristics by the climate, the materials, and the habits of the people, modified by the associations derived from a preceding age or from other countries. The elements of the colossal Architecture of Egypt attained their most perfect development at Thebes, and were gradually refined to the slender proportions of Athens and of Rome.

Of the private edifices of the Egyptians and the Greeks we have no remains, but their temples and their tombs are embodiments of their religious superstitions, were conducive to the purposes of their erection, and are evidences of their Architects' adhesion to the principle of fitness; whilst at Pompeii the Architect of later Rome acknowledges the force of the same principle by studying the convenient arrangement of the different buildings there preserved, and by their appropriate decoration.

The irruption of the Northmen completed the destruction of the enervated remains of Classical Architecture, as then practiced, and prepared for the evolution of a new style, as different as possible in its principle of beauty and effect; but the Mediæval Architects—those noble Freemasons who cherished the lamp of science, and the elements of civilization, in an age whose internal history is but imperfectly recorded—have left no proof that they wished to traverse this first principle of success in the art; but in their cathedrals, their convents, their castles, and in all their works, have left enduring evidence that, according to their knowledge, the material was that most suited for the purpose to which it was applied, whilst the external forms of the edifice, its outline or plan, and its elevation, were due to the climate, and to the convenient occupation of the building.

> "—— the high embowed roof,
> With antique pillars massy proof,
> And storied windows richly dight,
> Casting a dim religious light,"

Were all subservient to the great purpose of the building; not stuck on or about at random, without judgment and without taste. Their columns and arches, their buttresses, pinnacles, and moldings, were features essential to constructive excellence.

The most ordinary portions of buildings were refined by the taste and imagination of the Freemason into evidences of his just appreciation of the purposes of the art which he studied with scientific earnestness, elevated by his artistic feeling, and consecrated by his religious devotion.

Since the dissolution of their mighty union, their art has wofully declined in consequence of the associations of ideas, produced by the revival of ancient learning, of the increased influence of the Italian Republics upon the art, and of the promiscuous application of religious edifices at the Reformation in the sixteenth century.

Here we reach a new era in Architectural History, and a glance at this and subsequent periods will afford a clue to our deficiencies. The confiscation of church property, as in some European countries, and its bestowal upon laymen, would open a wide door for the admission of numerous incongruities; since many buildings erected for religious societies had to be adapted to the use of private families, and ecclesiastical edifices of one church applied to the use of another. Hence a necessary violation of the principle of fitness of the original design; and so also of the conversion of fortified castles and mansions to the purposes of a peaceful age: and as there are in all times men who more admire the errors of those above them than the unpretending excellencies of their own sphere, the blemishes thus produced would find frequent copyists in new buildings of humble rank, or for parvenues; and the absurdity is often heightened by association with buttresses that strengthen nothing, turrets with blank loop-holes that perhaps contain the chimney-flue, battlements never manned, drawbridges never raised across moats innocent of water, portcullises that are never lowered, and arms hung up for monuments which have never been bruised in the stricken field; and occasionally, to give additional piquancy to this mimicry of the baronial hall, a belted knight cased in mail, with lance and shield, kept watch on a carpeted staircase, doing no deeds of bravery and chivalry, but a mere man of straw after all.

The revival of literature produced a morbid craving for examples of the temples described in the ancient authors, and as the writings and sculptures of the ancients were manifestly superior to those which were indigenous, it was hastily concluded that so must be their Architecture, and therefore were the temples of an extinct or degraded people to be revived and adapted to modern use.

In the absence of correct knowledge of the sublime works of Athens, many barbarisms passed muster as classical beauties, and were worshiped as *fac-similes* of the glorious achievements of the age of Pericles. Experience seems to prove that in its purity this style is quite unsuitable for any country but those which are blest with a climate similar to that of Greece. Classical Architecture, at any rate for the present, has, in the United States, succumbed to the Queen Anne, Renaissance, Italian, and Gothic styles, but it has left its marks in the numerous unsuitable edifices throughout northern countries, in which the colonnades of Southern Europe give shade and damp to the buildings it is sought to enlighten; or by the placing of French windows, or fire-places for warmth, which are for the most part introduced in downright violation of all propriety of the style, or are masked with all the ingenuity of which the Architect is capable; whilst upon and around this specimen of *pure* art are placed statues *a la Grec*, (that is, one remove from a state of nature) as though they would persuade the thriving denizens of a northerly clime that it is the sunny South.

The portico now introduced is generally a mere ornamental excrescence, stuck on and not embodied as an essential feature of the accommodations required, as though Architects took the idea from meeting a bull with a stag's head, or some similar malformation of nature, which, to his perverted imagination, appeared worthy of duplication. We have many illustrations of this, where the portico is placed at the top of so many steps, that any one wishing to shelter under it, may be wet through before reaching it.

The introduction of the essential features of one class of religious edifices into churches whose ceremonial is independent of such accessories, is in bad taste, as suggesting discordance and controversy where harmony and union are most desirable.

In like manner, the formation of niches without statues, and where there is no probability of their being provided, is objectionable as suggesting a feeling of incompleteness, when, in fact, none is intended

Should the foregoing to the smallest degree furnish any new data for meditation to the thoughtful student in Architecture, or enable the more advanced architectural practitioner, in the pursuance of any given work of his art, to render it a more æsthetic and enduring monument to his skill, the purposes of my humble effort will have been achieved. Let, however, the ambitious Architect who thus cherishes the desire to establish such a lasting monument, be not deceived, but recall the expressive lines by Lord Byron:

> "Let not a monument give you or me hopes,
> Since not a pinch of dust remains of Cheops."

SAN FRANCISCO, Cal., July 1st, 1881.

Laying Bricks Properly.

The Builder and Wood Worker in reviewing the "Hollow Wall," question, among other things, says: "Inasmuch as common masonry is very porous, not merely because the bricks are porous, but also because *it is impracticable to fill the joints, most particularly the upright joints.*" We differ with our contemporary upon this point, as bricks can be so laid in ordinary walls, by skilled workmen, as to bed them thoroughly and fill every joint and interstice perfectly. The difficulties of the case exist in the general disposition among American contractors and mechanics to *rush work* to reach quantities rather than quality. If good mortar is used in sufficient quantities, and the bricks are well "shoved up" and no carelessness or neglects practiced, every joint in a wall containing a million of bricks may be perfectly filled. But in work undertaken by contract at low figures, the interest of the contractor lies in the piling in of the greatest number of bricks each day by each man employed. Consequently, the "boss" crowds his workmen to the greatest extent, and each workman knowing that the "slow men," however skillful they may be as mechanics, are likely to be the first discharged, strive to make the best impression possible, with the knowledge that such impressions are most effectually made by laying up the greater number of bricks per day. This state of things can scarcely be wondered at, since owners are unwilling to have work done by the day, on account of its greater cost, but require contract agreements, often with fierce and sometimes unfair competition, thereby dividing interests; for the chief concern and purpose of every man who undertakes a contract, is to make all the money reasonably possible out of the engagement; while on the other hand, the owner's paramount interest is founded in the character of work for which he is expected to pay his money. But, as a rule, the contractor has the advantage, unless the superintendence is under the watchful eye of some thoroughly competent and skillful man as "clerk of the works," to be ever on the alert; and even then, in a majority of cases, the most that can be is made of every possible opportunity to profit by every advantage that presents itself; all of which is perfectly natural under the contract system of operation, because the pecuniary interests of the contractor are in absolute conflict with every move which increases the cost of execution. But none of these facts establish the "impracticability" of solidly laid-up masonry, when the conditions surrounding the work are untrammeled by limitage of cost, and the parties doing the work are fully competent to its execution in a proper manner. If our contemporary simply proposes to apply the term impracticable to the prevailing rules and customs practiced in connection with contract work, and not as a mechanical fact, then it is correct. The point of argument with us is, that defects which exist through *common customs and practices*, should not be charged as inherent defects in mechanical principles.

Because walls have been built in San Francisco, and perhaps in other cities, with "chunks" of timber thrown in, and dry bricks little better than shoveled in, all done to make bulk of wall, it creates no argument against either the mechanical possibility or practicability of solid masonry. And the porousness of brick walls is more owing to the *careless manner of laying bricks*, and the quality and quantity of mortar used, than to the porous nature of the material. Nine-tenths of the sweating and dampness found in brick walls, could be overcome by the free and right use of mortar containing a proper quantity of good cement. For we contend that *every* joint can be entirely filled, and if this is done with the proper character of mortar, the porous feature must be nearly, if not entirely counteracted, even without grouting. But walls built of "salmon" and soft bricks, laid in stuff called mortar, sometimes composed essentially of sand or loam, with merely lime enough to "swear by" and no cement, cannot be denominated masonry in any reasonable mechanical understanding or appreciation of the term.

It Sometimes Happens this Way.

That clients interview architects, and relate their proposed plans of operation in reference to the erection of buildings, giving outline details of size, character, expenditure, etc, and then for the assumed purpose of learning the amount of incidental expenses, inquiry is made as to the architect's charges for plans, specifications, superintendence, and full architectural services; and when the *regular, right, and proper* amount of five per cent. is named, an objection is at once interposed to a percentage arrangement in any sum, followed by the proposition that a specific amount shall be named to cover all architectural cost and charges. To effect such arrangements, various, and more generally specious arguments are used, sometimes strengthened by promises of "something better in the future," to support which, fine-spun stories of contemplated things are dished up and served out with as much pretense of fact as a scheming politician would use in his efforts to secure a nomination for a "fat office." And the arguments thus employed are farther urged to induce a moderate "lump bid." In other cases, "*personal influence*" is suggested as an inducement for departure from established rates. Meanwhile, the final magnitude and extent of the contemplated improvements are obscured as much as possible, until a satisfactorily low arrangement is consummated, and the work of plan-making commenced. This point being reached, discovery is made that funds will not be so limited as at first supposed, and the expenditure of an increased amount is determined upon, as far as all else but the architect's fee is concerned; that being agreed upon, must not be changed, although the general outlay and architect's labor may be increased twenty-five or fifty per cent. And the newly-discovered conditions are further found to warrant more costly details, all of which are expected to be carried out by the architect without additional charges. The impositions imposed in such cases are certainly unfair and unreasonable; but more generally architects submit to them, rather than provoke a disagreement, and such owners reap the benefit of their shrewd management. Lying is not regarded as a virtue by men of fair business integrity, and when perpetrated through the deceptions herein outlined, meanness is added; yet it is often done by persons who estimate themselves highly, and make pretense of being just and fair men.

We know of instances where architects have been thus ensnared, in which the amount of money paid did not cover the actual expenditure of the architects for draughtsmen's services. In one case, the owner could not afford to pay more than $300 for the plans and details of his private residence; and secured them for that sum, with the promise that *his firm* had purchased a lot on Market street, between Third and Fourth streets, with the intention of erecting a large, five or six story brick building thereon, and that the architect in consideration should have the preference on better terms. The residence cost about $30,000, which, at the established rates of five per cent. would have given the architect $1,500. But when the brick building was on the market, instead of the then principal of the firm being true to his statements and promises, the matter was thrown open for competition, not by competitive drawings, but upon price. Consequently, a large number of architects were interviewed, and bids for services received, varying in amounts from $2,500 down to less than $1,000, if the statement of the principal party was true. But the architect who made the plans for the residence, and who wanted $2,500 for the firm's building, which was only about two and one-half per cent., was discarded, and the work given to another, who received about one per cent. for his services.

In another case, an agreement was made between an owner—a very prominent citizen of San Francisco—and an architect, upon the basis of a dwelling which was to cost about $6,000 to $7,000, not exceeding the latter sum, but which did cost $15,000, not through defaults or failure on the part of the architect, but because, *after* the bargain was made, the plans were shaped out, and the size and character of the building made such, that it could not be built for less money. In this instance, "personal influence" was the strong point urged in argument to beat the architect. Occurrences such as those related, to which hundreds of others might be added, may sometimes benefit financially those who resort to them; but at the same time they exert a demoralizing influence upon those who are made to endure their hardships; and it is a settled and natural fact in all relationships, that men are not made more virtuous and honest by the imposition of wrongs upon them, and sharp practices in any direction simply stimulate the "get even" propensity, and breaks down the walls and barriers established by well-regulated and honorable business rules.

We do not claim exceptional virtues and honesty for architects, over and above all other classes of mankind, for they too are human, and as likely to be in some degree contaminated with the spirit of the age in which we live as others; but "beating" them, and obtaining their services for less than fair compensation, particularly through misrepresentation, is not calculated to enlarge and increase their sense and purposes of right.

Some Rich White Men "alle same" as Chinamen.

One of the material and forcible arguments urged against the immigration of Chinamen to this country is, that they hoard up their earnings and send or take them to China—thus to a certain extent robbing the places where such earnings have been obtained, of the benefits arising from investments in permanent improvements or operations by those who have grown rich or well-to-do, through opportunities and facilities occurring in their respective cities or places of operation.

The same argument holds good, as far as California is concerned, against those of our own race who came hither in the "early times"—many of them with scarce a "second shirt to their backs"—who having grown rich through the opportunities existing in this goodly land, take themselves and their *California-obtained wealth*, and locate and invest their means in other States and cities, against the best interests of the State that gave them the wealth enjoyed.

We complain of sparseness of population, limitedness of development, apathy of enterprise, and sluggish general advancement as a State. The cause of all this is, that too many of those who have accumulated wealth, instead of becoming interested in the general welfare of this city and State, and applying the means reaped from operations exclusively and especially Californian in character, have become selfish and gold-loving, caring nothing for the public good which did and does not in an *excessive degree* return gold to their pockets; and in innumerable instances, by land-grabbing, stock, and other manipulations—Spring Valley water, gas, and numerous other corporations—enforced upon the masses severe and unjust wrongs and oppressions—all for the purpose of raking in and multiplying personal or corporate wealth, to the impoverishment of the many.

What better than Chinamen are such men, as far as the public good and the less fortunate of our people are concerned? Have not the millions held by Flood, Fair, and others of their class, been drawn from the pockets of the common people? How is it, if their transactions have been fair, that these men have multiplied their riches to scores of millions, while the thousands who have been gulled by the devices and well-planned schemes which have been vitalized by these managing men, are beggared to-day? The face of facts plainly proclaims and establishes dishonesties and villanies of the worst character, covered by legal practices; and these lie between those who have accumulated millions, and those who have nothing to show as the result of their investments in the same operations, but have lost everything that they once possessed.

It would be a ridiculous and monstrous falsification to assert and advocate that honesty had been the rule of all, in a partnership of any sort, with all the members otherwise equal in the social and ordinary proprieties of life—where one member of the firm became personally rich, and all the other members, and the firm as such, became bankrupt. In such cases but one conclusion can be, or is ever reached; and that is, of rascality on the part of the successful member. And the rule that applies to commercial and business firms applies also in matters where the men who manipulate great interests accumulate scores of millions, and all others in the same interest lose everything.

Such men, and all others who draw the life-blood out of our community and leave this city and State with their wealth, whether honestly or dishonestly obtained, to invest it in other places—leaving California to take care of itself and work out its own salvation—are no better, as far as the interests of the masses and the common good of the State is concerned, than the meanest Chinaman that ever walked the streets of San Francisco, or trod the shores of the Pacific Coast.

The Pressure of Wind.

In a paper before the American Society of Civil Engineers, Mr. C. Shaler Smith gives the result of many years' observation of wind-pressure and its effects. He has personally visited the wrecks of destructive storms as soon as possible after their occurrence, for the purpose of determining the maximum force and the width of the path of the storm in every instance. The most violent storm in Mr. Smith's record was at East St. Louis, in 1871, when the wind overturned a locomotive, the maximum force developed in so doing being no less than 93 lbs. per square foot. At St. Charles, in 1877, a jail was destroyed, the wind force required being 84.3 lbs. per square foot. At Marshfield, Mo., in 1880, a brick mansion was leveled, the force required being 58 lbs per square foot. Below these extraordinary pressures, there were sundry cases of trains blown off rails and bridges, etc., blown down by gales of wind of from 24 to 31 lbs. per square foot. Mr. Smith observes that in all his examples he has taken the minimum force required to do the observed damage, and has considered this as the maximum force of the wind, although, of course, it may have been much higher. Some of the hurricanes were very destructive, the one at Marshfield having cut down everything along a path of 46 miles long and 1,800 feet wide, killing 250 people. Mr. Smith has formed the conclusion that, notwithstanding these examples, 30 lbs. per square foot is sufficient wind pressure to allow for in a working specification. As reasons for this conclusion, Mr. Smith expresses doubts as to whether a direct wind or gale ever exceeds this pressure. Whirlwinds may exceed it, but the width of the pathway of maximum effort in these is usually very narrow. Mr. Smith has only found one example (already quoted) wherein the path of pressure over 30 lbs. per square foot exceeded 60 feet wide. This pressure is in itself very unusual.—*American Ship.*

The Illinois Plumbing Law.

The Chicago *Times* gives the text of the law regulating the inspection of tenement and lodging houses, recently passed by both branches of the Legislature of Illinois. We quote it substantially entire:

"Any architect or architects, builder or builders of, or other person or persons interested in, any projected tenement, lodging-house, or other place of habitation, in any incorporated city of 50,000 inhabitants, shall submit plans and specifications of such building to the Health Commissioner, for his approval or rejection, as to the proposed plans for the ventilation of rooms, light and air shafts, windows, ventilation of water-closets, drainage, and plumbing.

"Any plumber or other persons interested in the contract for the plumbing work of such buildings shall receive a written certificate from the Health Commissioner before commencing work on the said building or buildings, and shall proceed according to the plans, specifications, and instructions approved by the Health Commissioner.

"Any plumber, or other persons interested in the plumbing work, after the completion of said plumbing work, and before any of the said plumbing work is covered up, shall notify the Health Commissioner that said building is ready for inspection; and it shall be unlawful for any plumber or other person to cover up or in any way conceal such plumbing work, until the Health Commissioner approves the same."

The violation of the act on the part of architects is punishable by fines of $100 to $200; and on the part of any plumber by fines of the same amount for the first offense, and of $10 additional for each day that, after the first conviction, he refuses to comply with the provisions of the act.

The act concludes as follows, expressing the conviction of the Legislature as to the importance of the law:

"[Emergency.] Inasmuch as the health of the people is endangered, an emergency exists requiring this act to take effect immediately; therefore, this act shall take effect and be in force from and after its passage."—*Sanitary Engineer.*

Elm-Wood.

The use of elm-wood for various purposes is claiming the attention of manufacturers. The elm marketed is known as the "gray elm." Elm of any kind is rightfully designated, when it is called "tough"; and tough it is after the manner of the toughest leather. Its grain is not straight and easily separated like oak, or some other woods, but it is interwoven, gnarled, knotty, and tough, as any one may learn who attempts to cut it. The elm in use is the water-elm found in high places. Until lately it was let alone and considered useless; but any farmer where elm grows, knows the value thereof. When a new axe-handle is wanted, he does not buy the checky and cross-grained helves manufactured, to wear out speedily, but makes one of his own handiwork from an elm limb. Such helves will outlast a dozen of the machinery-cut kind. For all kinds of farming implements elm is particularly desirable, as well as for wheel stock and any contrivance that requires strength. One firm is said to be supplied with a half-million feet of elm. The wood is coming into general use, and is a valuable addition to the hard-grain woods.—*The Northwestern Lumberman.*

A Very Mean Practice.

We dislike to express harsh or hard words, but annoyances sometimes provoke them, and in this instance the provocation arises from a very mean cause or practice—that of parties who are anxious to read this journal, but who refuse to subscribe for it because they can *borrow it* of some one who does subscribe and pay for it. There is a species of small meanness in such a course which no honorable-minded man should practice, unless he be actually too poor to pay the subscription price. And to relieve those who are thus unfortunately circumstanced, from the humiliation of *sponging* upon others, we will furnish them regularly, free of charge, provided the fact of absolute poverty is shown.

But the fact in a majority of cases is not actual inability to pay, but a disposition to obtain without cost something desired. Many of these pertinacious parasites spend more for drink, at cards, or in other nonsensical ways, in one month, than would pay the subscription price of several journals and newspapers for a whole year.

Help it On.

The fact that this journal is quoted by others in all sections of the United States, and also by European journals, and supplies the fullest and only correct list of *building improvements* going on in this and other counties of the State, and is filled monthly with valuable and instructive building, sanitary, scientific, and other matter, should induce every *owner of real estate, every tenant and occupant of rented houses; every architect, and every builder and mechanic in all lines and branches of mechanical operations*, to at once place their names upon its subscription-roll. We intend not only to maintain its present excellence, but to make it infinitely more worthy of support and encouragement, and we hope that thousands more upon this coast and from all sections of the country will aid us in perfecting and consummating the many high purposes contemplated.

Items in General.

There is a theory held by many, that altitude has a controlling influence on the character and proclivities of the human race, and that the higher development is to be found at the higher altitudes. However this may be, it is a fact, that all the saviors of the world, the great prophets and teachers, were natives of high lands, and what is, perhaps, better still, of good climate and pure atmosphere. * * * The movement of the human race within the historic period has been from the interior of the continents to the seashore. When the caravan was the means of commercial carriage, the great capitals of the world—Babylon, Nineveh, Palmyra, etc.—were in the interior of the continents; but when the seas began to be traversed by improved methods of navigation, the great commercial marts were transferred to the shores of the seas, at harbors, and at the mouths of great rivers. * * * —*Lecture in Kansas City Review.*

California Redwood. — We presume the selected qualities, 3ft. 4in. and that suitable for special purposes, such as veneers and curly pieces, are offered for sale in the Eastern markets. We find it advertised in Eastern journals. Redwood shingles also find a market in the Eastern States. We have received several letters in reference to the use of redwood shingles, where rain-water is stored in cisterns, so far as the discoloration of water, etc., is concerned.

A piece of zinc placed on the live coals in a hot stove will effectually clean out a stovepipe, the vapors produced carrying off soot by chemical decomposition.*

The largest stone ever quarried in Iowa was taken out of the Anamosa quarry a few days ago. It was 55 feet long, 4 feet 8 inches wide, and 3ft. 4 inches thick, and was cut out of solid rock, and there was not a crack in it.*

A log of walnut veneer has been imported to New York from France, which for size, color, and freedom from blemishes has rarely been equaled. The largest sheet was nearly four feet square, and the entire log contained 9,000 square feet. Its companion sold for $5,000.*

Bands of music are forbidden to play on most of the large iron bridges of the world. A constant succession of sound-waves, especially such as come from the playing of a good band, will excite the wire vibrations. At first the vibrations are very slight, but they will increase as the sound-waves continue to come.*

**Leffel's Mechanical News.*

The silk industry of America for the year ending June 30th, 1880, employed 34,440 operatives, nearly one-half of whom were women.

The peanut crop for 1880 amounted to 2,200,000 bushels, yielding to first hands $2,150,000.

The doctor's best friend—imperfect plumbing work and defective sewerage. These multiply patients and keep the doctors busy.

There is no surplus of *good workmen* in any of the lines of building or mechanical operations in San Francisco, nor in California generally. The unskilled labor of the State is also fully employed, except, perhaps, a few scrubs not worth a penny a day. Six of them stewed down would not produce one average good hand.

The great need of the Pacific Coast is increased manufacturing enterprises. Too many millions of dollars have been and are being sent abroad for things which might be made or produced within our own borders. If those who have acquired their wealth in California will not improve the opportunities that abound to develop the resources of this State, we hope that Eastern and European capital will come this way and possess this goodly land, prolific in ten thousand means of wealth to those who will enter and occupy. So far, all well-undertaken and judiciously-managed manufacturing ventures have proved successes, and still there is room for many more.

[*From the Druggist's Circular.*]

Brown Stain for Wood.—Paint over the wood with a solution made by boiling one part of catechu (cutch or gambier) with thirty parts of water and a little soda. This must be allowed to dry in the air, and then the wood is to be painted over with another solution made of one part bichromate of potash and thirty parts of water. By a little difference in the mode of treatment, and by varying the strength of the solution, various shades of color may be given with these materials, which will be permanent, and tend to preserve the wood.

To Clean Smoky Walls.—Brush them with a broom, then wash them over with strong pearl-ash water, and immediately rinse them with clean water before the pearlash is dry. When dry, give the walls a thin coat of freshly-slacked lime, containing a liberal proportion of alum dissolved in hot water. Finish with whiting and good size. Be careful not to apply the size distemper till the lime-wash is dry, as the latter will destroy the strength of the size, if the two come in contact while wet.

To Darken Oak Framing.—Take one ounce of carbonate of soda, and dissolve in half a pint of boiling water. Take a sponge or piece of clean rag; saturate it in the solution, and pass gently over the wood to be darkened, so that it is wet evenly all over. Let it dry for twenty-four hours. Try first on an old piece of wood to see color. If too dark, make the solution weaker by adding more water. If not dark enough, give another coat. This may always be kept ready for use in a bottle corked up.

How to Use Oil Stones. — Instead of oil, which thickens and makes the stone dirty, a mixture of glycerine and alcohol is used by many. The proportions of the mixture vary according to the instrument operated upon. An article with a surface—a razor, for instance—sharpens best with a thinner liquid, as three parts of glycerine to one of alcohol. For a graving tool, the cutting surface to which is small, as is also the pressure exercised on the stone in sharpening, it is necessary to employ glycerine almost pure, with but two or three drops of alcohol.

[*From Builder and Wood Worker.*]

"Some amendments to the Mechanics' Lien Law have recently been under consideration in the New York Assembly, which if adopted, will place the mechanic and laborer on a sure footing with regard to their wages, as it will give workmen precedence over all other creditors or mortgages. This will be all very well for the workman from one standpoint, but it will probably have the effect of preventing money being borrowed, as the lender would not like to run the risk which the law would impose."

"There are no less than 175 brick-yards along the banks of the Hudson River, some of which turn out 125,000 bricks daily."

"There is every prospect [in New York] of a rise in building labor and materials during the coming fall. Building supplies are light, while the consumption is enormous, and steadily increasing. These facts point strongly to enhanced values."

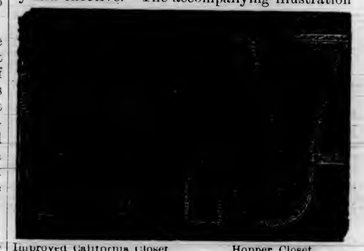
"At no time since 1872 have the building trades in New York city been so brisk as at present."

The artesian well in Providence street, Boston, 1,850 feet deep, it is believed will give 360,000 to 400,000 gallons daily. Ten or twenty such in San Francisco would go far towards solving the "water question," and lessen the coin chances of the Bayly & Co. class of Supervisors.

"The death of a young physician in St. Louis recently is attributed to the fact that the waste from the safe under the wash basin in his sleeping room was connected with the main-basin waste below the trap, thereby affording free ingress of sewer gas into the room."—*Sanitary Engineer.* [This sort of stupid *un*-plumber-like plumbing is to be found in San Francisco, and thousands of Californians are now resting in the cemeteries near this city from this and similar causes—and still many owners of property disregard the fact.—Ed.]

The total building expenditures in New York in 1872 was $27,000,000. In 1877, less than half that sum. In 1880, $24,000,000.

"The Sanitary Condition of New York," by George E. Waring, Jr., contains the following in regard to a San Francisco invention of William Smith. * * * "One of the best forms of the hopper closet is that known as 'Hellyer's Artisan,' which has a perpendicular rear wall, and the flushing discharge of which pours with considerable force into the trap. It may be effectively flushed by a cistern of simple construction placed at a moderate elevation. The other, the invention of William Smith of San Francisco, is most cleanly and effective. The accompanying illustration



Improved California Closet. Hopper Closet.

shows a modification of the form and arrangement of this closet which seems to meet every requirement. It has no moving parts; its basin stands full, so that dejections are received immediately into water, and their odor retained; and its discharge is effected with such force that nothing which ought to gain admission to a water-closet can fail to be carried completely away, in a flood of such abundance as thoroughly to flush the soil-pipe and drain. The supply is taken from a tank standing at a considerable elevation; or, by a more recent device, from a lower elevation through a pipe standing full of water for its whole length. In either case, the main supply is delivered in the form of a forcible jet at the bottom of the trap, flowing with sufficient force to carry with it the contents of the bowl. A branch from the main supply flushes the bowl, and as the flow ceases, fills it again to the required height.

California Glass Works.

A lengthy description was given in the *Evening Bulletin* of recent date, of the San Francisco and Pacific Glass Works, which commenced manufacturing operations on the 24th of last month in their new establishment, which occupies a lot 224x220 feet on King street. This is a combination of two rival companies, which existed up to about five years ago. It is an incorporated company with $100,000 capital. The new works have a capacity of fourteen tons of manufactured glass daily, employing 125 men and boys. Other enterprises in this connection are contemplated by the company, which will employ a large additional force of employés.

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

PIONEER WHITE LEAD WORKS.

What is required to institute and carry to a success a manufacturing enterprise? Nature is generous with her gifts; but she forces man to the exercise of his endowments, to develop them, and give the substance a form for his appreciation and enjoyment.

The very many natural resources of this Coast are marvelous, and they impress all thinking visitors with the conviction of a great future. With but few exceptions, these wondrous gifts of Nature are at present but mere curiosities, and are spoken of and written of only as such—with prosy theories on their practical value if utilized.

To the business man, scientist, or to the practical thinker who comes amongst us, it is a matter of surprise that our people, with their wealth, do not develop these resources, and build up our coast with a working and useful population, instead of pursuing the selfish course they are now, which is that of the usurer.

Our capitalists and business men are blind to their own interests, in not interesting themselves in the establishment of manufacturing enterprises, which will secure for them a certainty of fair returns for their encouragement.

The people of this Coast cannot afford to let existing opportunities lie idle, *as a dependency on foreign sources means our impoverishment. Manufacturing guarantees the reverse, as it furnishes employment to, and retains among us, consumers,* that vital quantity in a progressive and permanent prosperity.

We have much pleasure, however, in being able to refer to some notable exceptions to the general apathy of our business and moneyed men.

Heading this article will be seen an illustration of the results of the energy and public spirit of one of the leading and pioneer mercantile firms on the Pacific Coast.

Messrs. Whittier, Fuller & Co. several years since commenced the manufacture of White Lead in this city.

They purchased ground on Fremont street, between Howard and Folsom, covering a surface of 137 6-12x275 feet, and thereon erected factories and sheds, for the purposes of the business.

Their whole works, machinery, and appliances, are on the most approved plans, and excel in detail and completeness those of any other White Lead factory in the world.

This is essentially a *home institution, from the ground through to the finished product of their mills.*

Few can realize the importance to the whole community of this enterprise.

In the first place, it encourages the development of our mines, as all the pig lead used is the production of our own coast.

It thus gives the Miners employment.

As all lead ores have to be smelted to get the metal,

It thus gives the Smelters employment.

The transportation from the producing points invokes aid of the carriers:

It thus gives Teamsters and Transportation Companies employment.

A very large quantity of oil is used in the grinding of the lead. All this oil is crushed from seed raised in this State.

It thus employs the Farmers.

All the pots used in corroding-sheds are made here.

It thus gives employment to the Potteries.

The maintaining of a factory requires the services of machinists, millwrights, and laborers:

It thus gives employment to an Army of Operatives.

And in fact, everything in and about the works is of home manufacture. *Now, what does the employment of the many branches of industry hereinbefore enumerated demonstrate?* This fact: that as they are *all consumers,* their wants *engage every business* on the Coast to supply them.

The product of the

Pioneer White Lead Works

Is not excelled by any other make in the world. It is guaranteed *strictly pure; it is white, very finely ground,* and has *superior body* and *covering properties.*

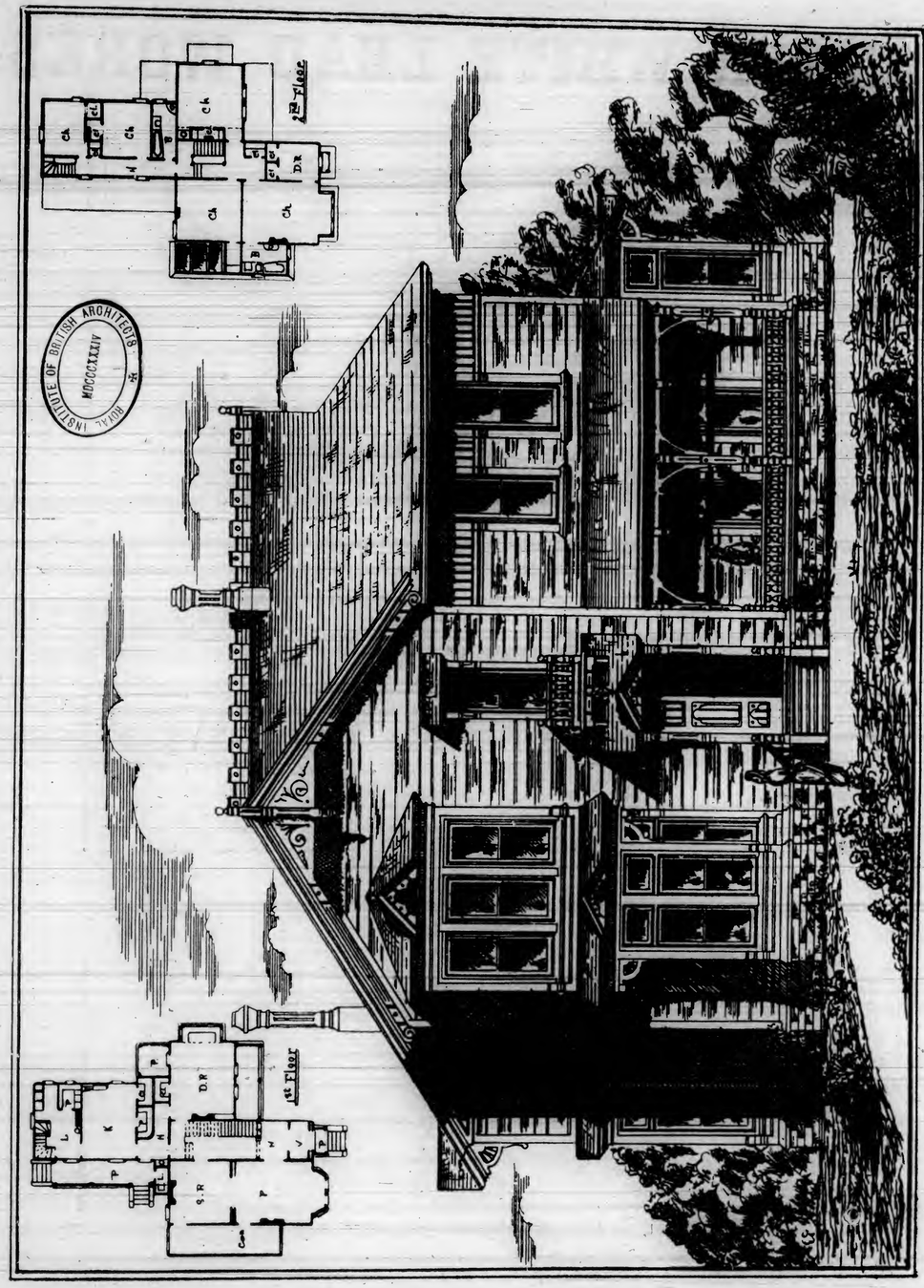
The manufacturers announce their determination to always offer it to consumers at less prices than any imported brands.

As against the imported, there would be great economy in its use, even at equal prices. All painters know that White Lead that has been packed any considerable time loses a great deal of its vitality, in the absorption by the kegs of a considerable quantity of the oil; leaving a hard mass in the keg, involving time and expense in its extraction and working up for use, and a costly addition of oil.

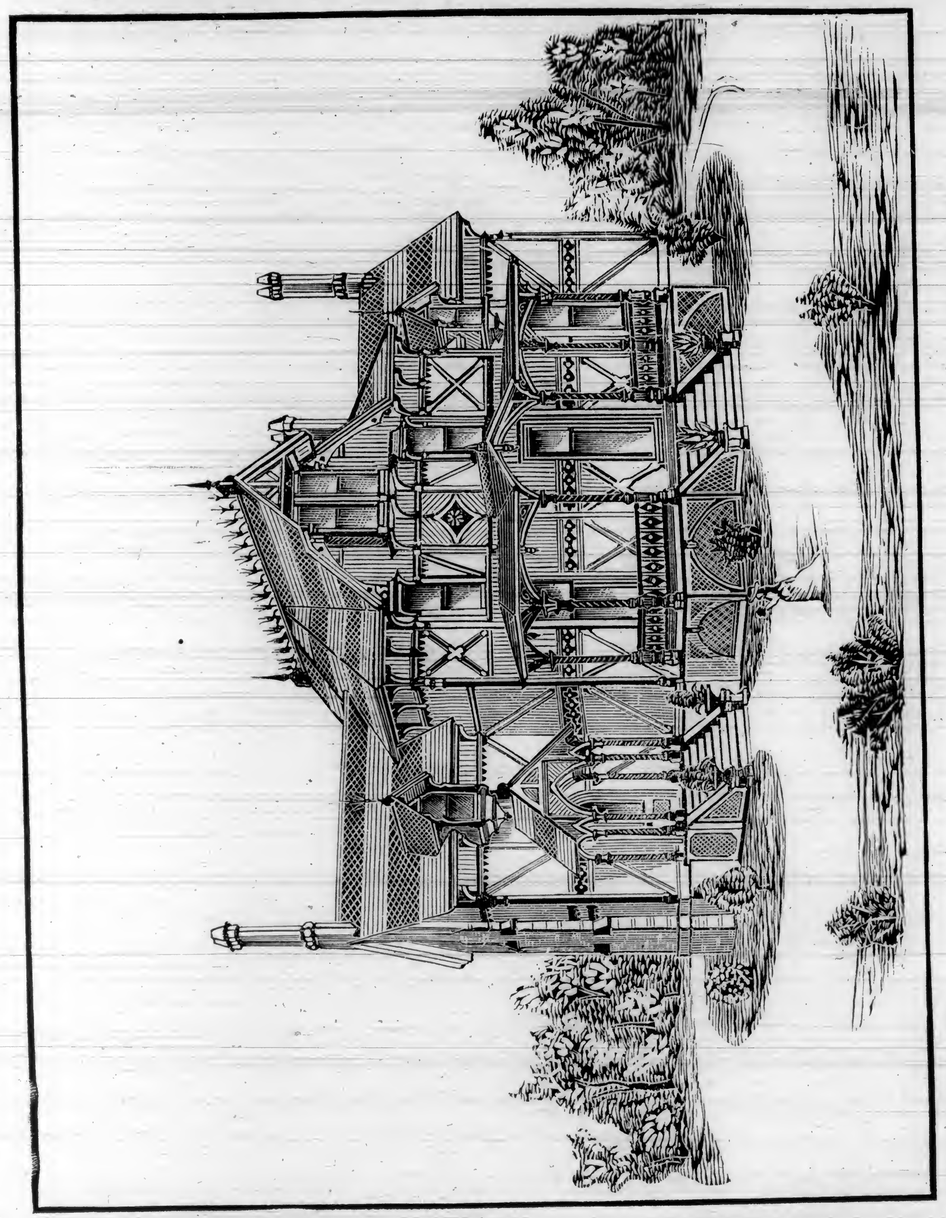
The Pioneer being all freshly packed,

all this expense is avoided.

We know what the White Lead is, and we have no hesitation—in fact we take pleasure—in recommending our brother architects to write it in their specifications and to *insist on its use: first, on the score of quality; second, economy; third, the general benefit to all of us.*



ORIGINAL DESIGN AND PLANS FOR A COUNTRY RESIDENCE.



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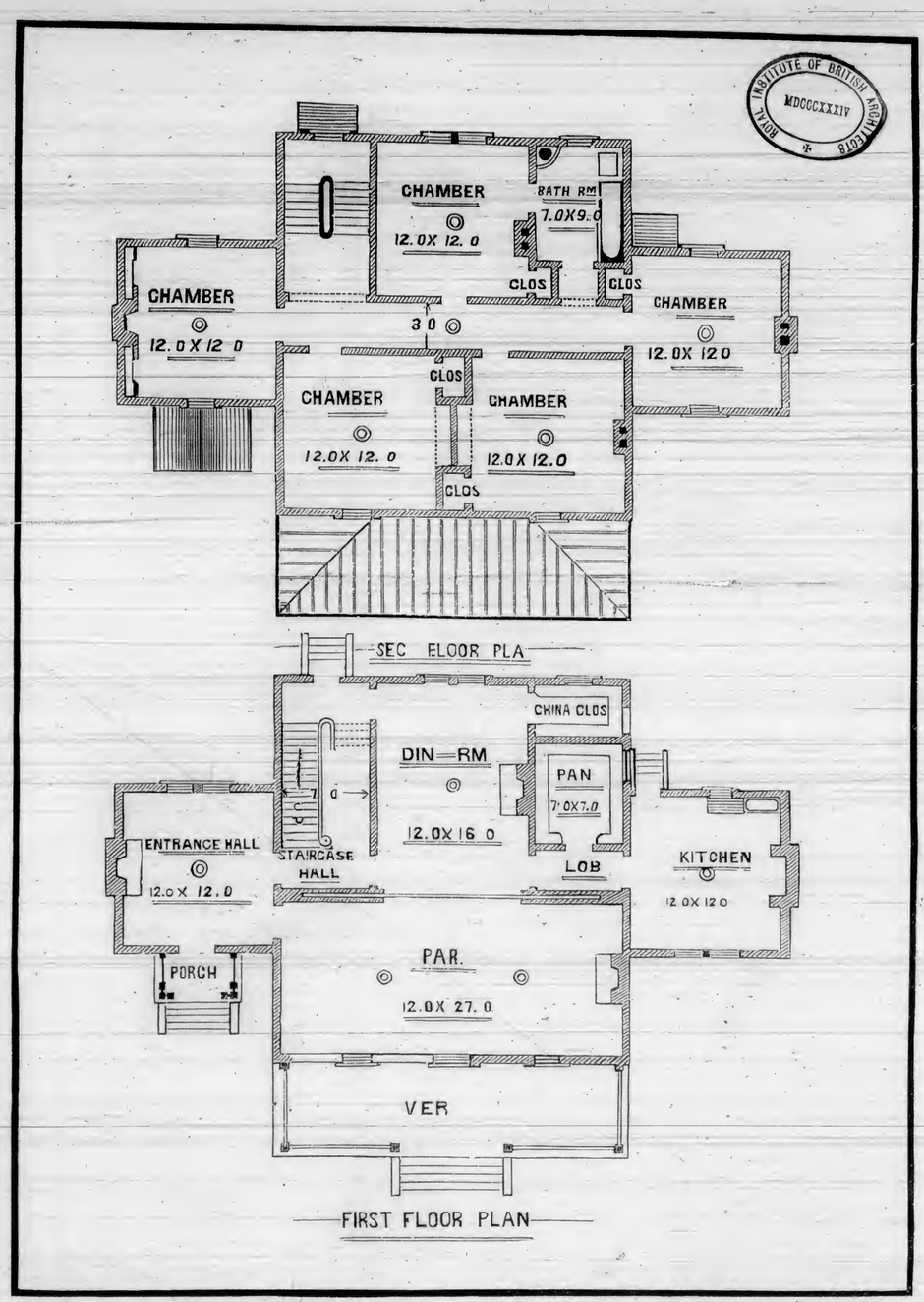

ROYAL INSTITUTE OF BRITISH ARCHITECTS
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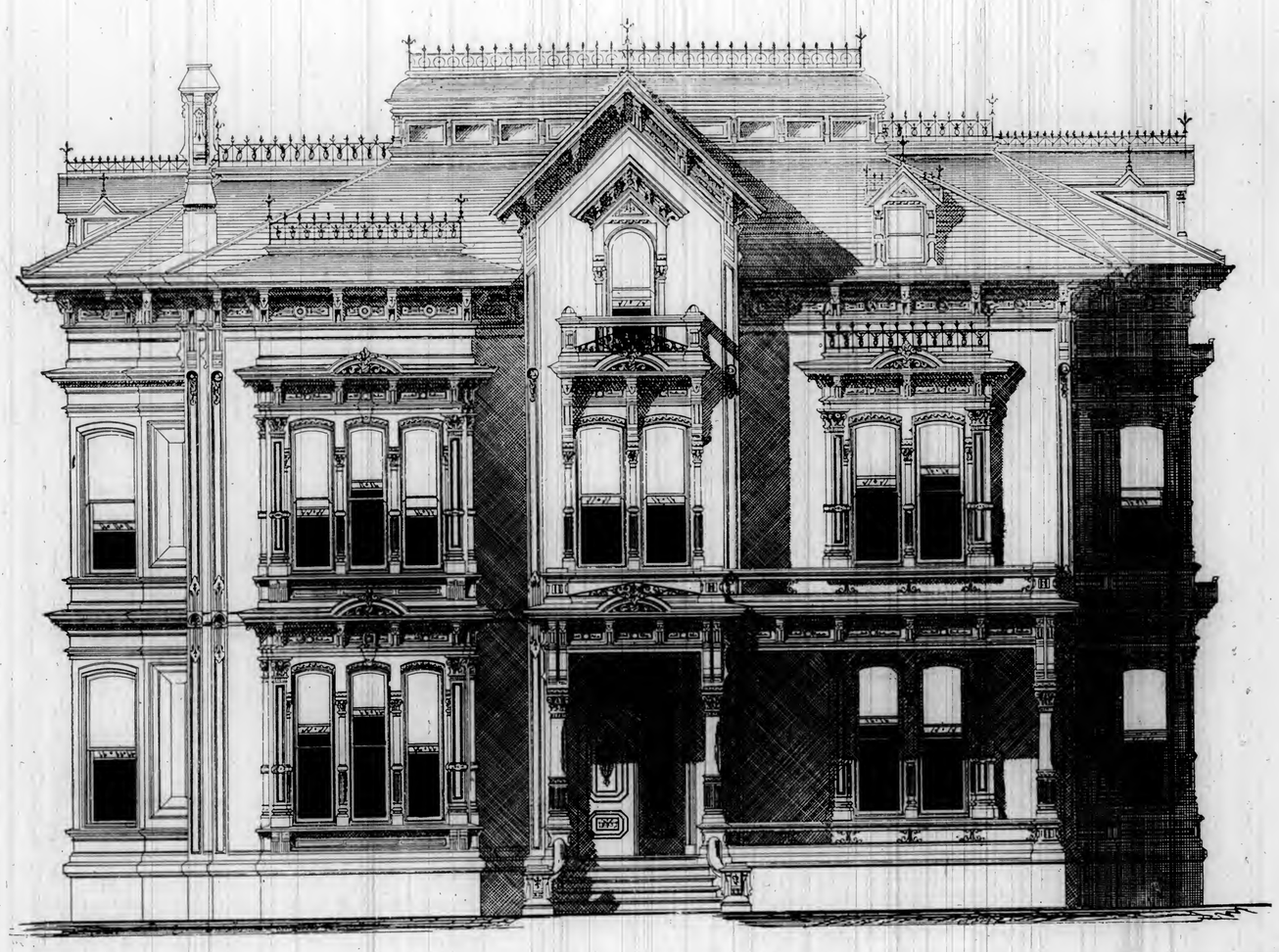
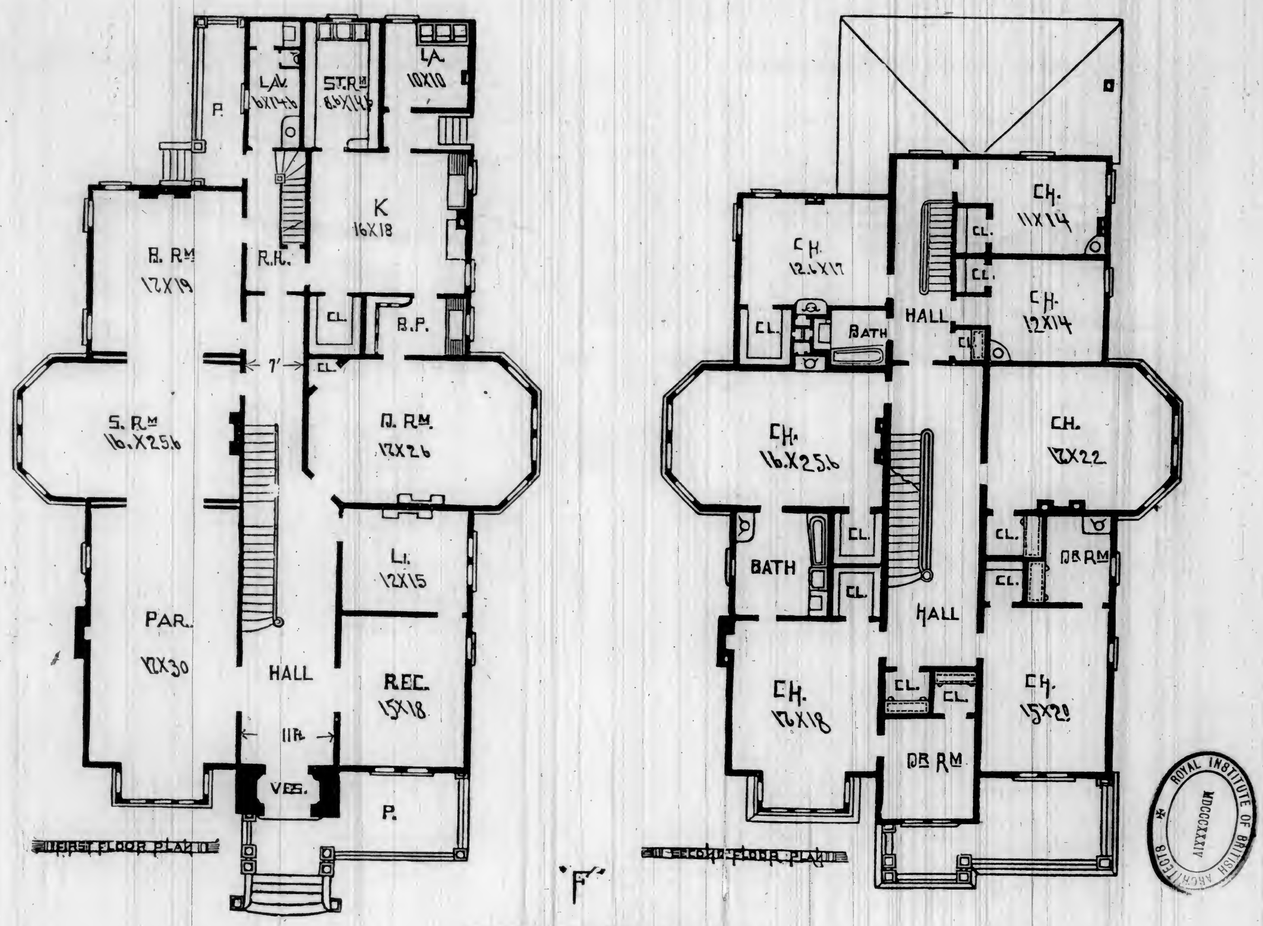


ORIGINAL DESIGN FOR A HANDSOME RESIDENCE.



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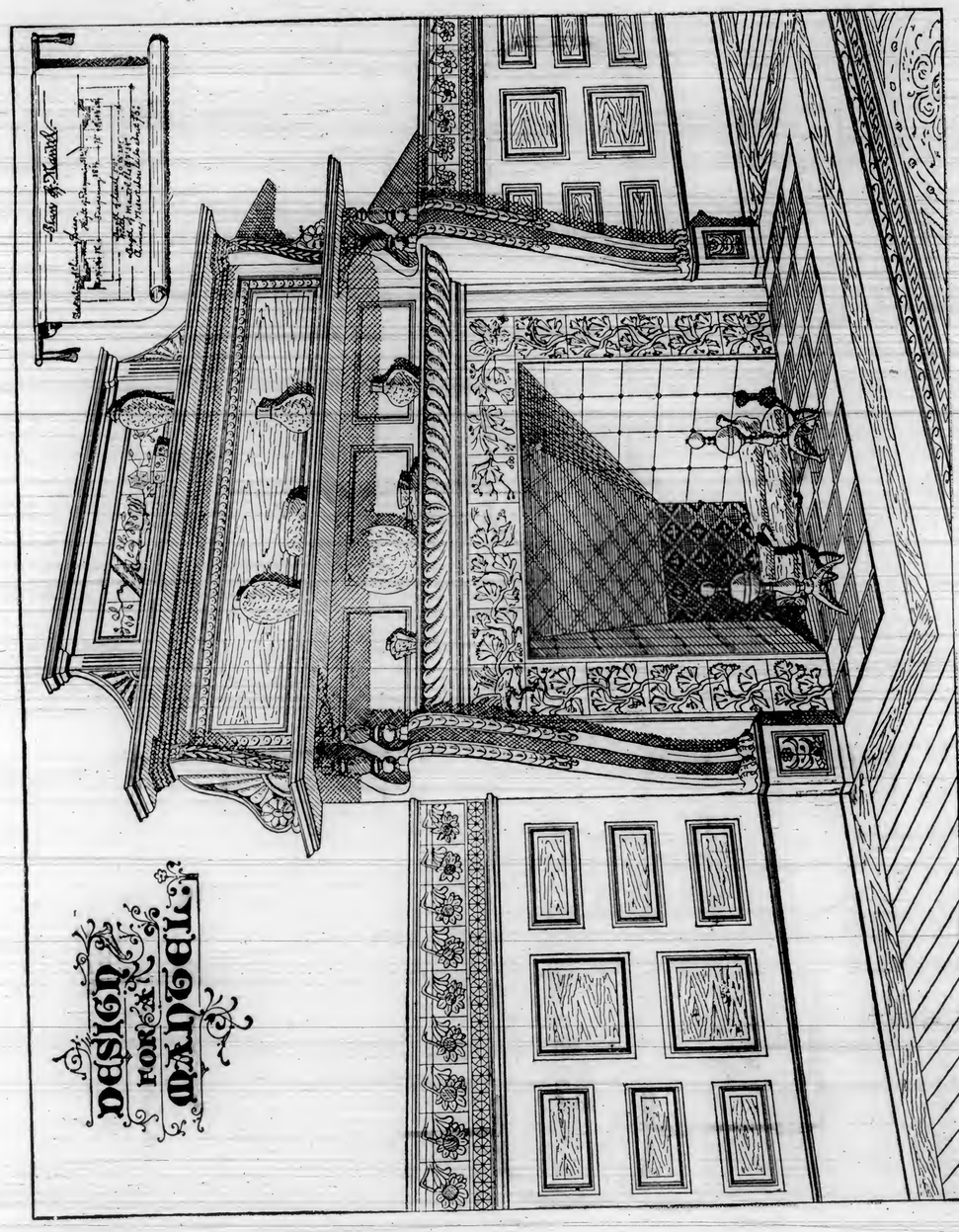

DESIGN FOR A MANTEL.

EVERYBODY'S COLUMN.

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L. T. B., Sonoma.

ANS.—Extend line C E. With C as a center, and any radius, draw an arc cutting at A B, which join. Draw C D parallel with A B. Draw line E D square with line C D, cutting at D, and angle A E is bisected.

SAWDUST from box-wood is very useful in cleaning jewelry.

BUSINESS MANAGER OF ARCHITECT:—I have selected a site for a large house, but before building, sank a well to see how far water was to be found from the surface. The first two feet was a rich loam, then four feet of very stiff clay, then quicksand, in which the workmen did not seem to make much headway. What I want to know is: Is such ground capable of holding with safety a large two-story house with brick basement? J. K. R., San Diego.

ANS.—It depends on the skill of your architect. If your footings are broad and compact, your building will stand as well as if built on solid rock. St. Paul's Cathedral, one of the largest and weightiest buildings in the world, stands upon a layer of clay only from four to six feet thick, above a quicksand forty feet deep; yet from the breadth and compactness of its footings, the goodness of its masonry, the equipoise of its several parts, and the masterly skill with which it is joined together, it is freer from flaws and settlements than all other great buildings in the world,—however good their foundations.

BUSINESS MANAGER OF ARCHITECT:—Will you please illustrate a method for setting a gauge for an octagon without drawing the figure. B. Y.

ANS.—Let B D E H be any square. From B with the radius A B, draw A C. Set the gauge to equal C H.

SMOKY CHIMNEYS.—We have received a very lengthy article in regard to a cure for smoky chimneys. A gentleman has just finished a fine mansion, but is "bothered to death by volumes of smoke pouring out of the wrong end of them." We would have to make a personal examination before prescribing a remedy. In this connection it would be well to heed the advice of Dr. Franklin: "Should the chimney of a house, for want of previous consideration, be found to smoke, no afterthought will compensate this want of forethought. And he who has begun in this manner can only expect to have the ill-construction of a chimney to combat with, which is often impossible to alter." There is no greater mistake than supposing that smoky chimneys were unknown before our times, and that the unsightly contrivances on their tops—frequently abortive—are the notable inventions of the present day. From the first introduction of flues, smoky chimneys have been always proverbial nuisances, although from obvious causes such complaints were infinitely fewer than they are now. Smoke often returns into a room of a morning when the fire is first lighted, not from a fault of the chimney, but from the cold air in the flue, which prevents the smoke getting up till the chimney is warmed, and the air in it rarified.

CALIFORNIA ARCHITECT:—Can you tell me when *files* were first used? What are *lightning files?* VALLEJO.

ANS.—Would respectfully refer our inquirer to 1 Samuel, thirteenth chapter, twenty-first verse. It will interest him, and no doubt others, to make researches, and find out how long before that time files were *first* used.

The term *lightning*, as applied to a file, is known principally by those using the saws of that name, and to some extent by those using other cross-cut, M-shaped, saw-teeth.

BUSINESS MANAGER OF ARCHITECT:—Three men are carrying a stick of timber thirty-two feet long. To insure an equal weight to be carried by each, how far back from the end of the timber should a bar be placed, so that two men having hold of the bar and one at the end of the timber shall have each an equal weight to carry? Suppose one end of the stick is larger than the other, is there a rule by which we can easily ascertain where the carrying-bar should be placed?

SUBSCRIBING MECHANIC.

ANS.—1st. Eight feet, or one-quarter of the length of the timber. This will apply to any stick of equal thickness and width throughout.

2nd. Find the center of gravity by balancing the timber across a lever. From this center the man at the end must be twice as far as the two men with the bar.

The above is the rule that is generally used by our mechanics. Suppose, however, that the stick is round, eighteen inches diameter at one end, four inches at the other, and twelve feet long. Will some of our friends inform us how the rule would operate in such a case?

Suppose a stick of timber is thirty-two feet long, twelve inches diameter at one end, eight inches at the other, and it is necessary for the small end of the stick to be placed in the building first. Now, with five men carrying the stick—two pairs having carrying-bars, and one on large end—how will the men have to be placed, so that each will carry an equal weight?

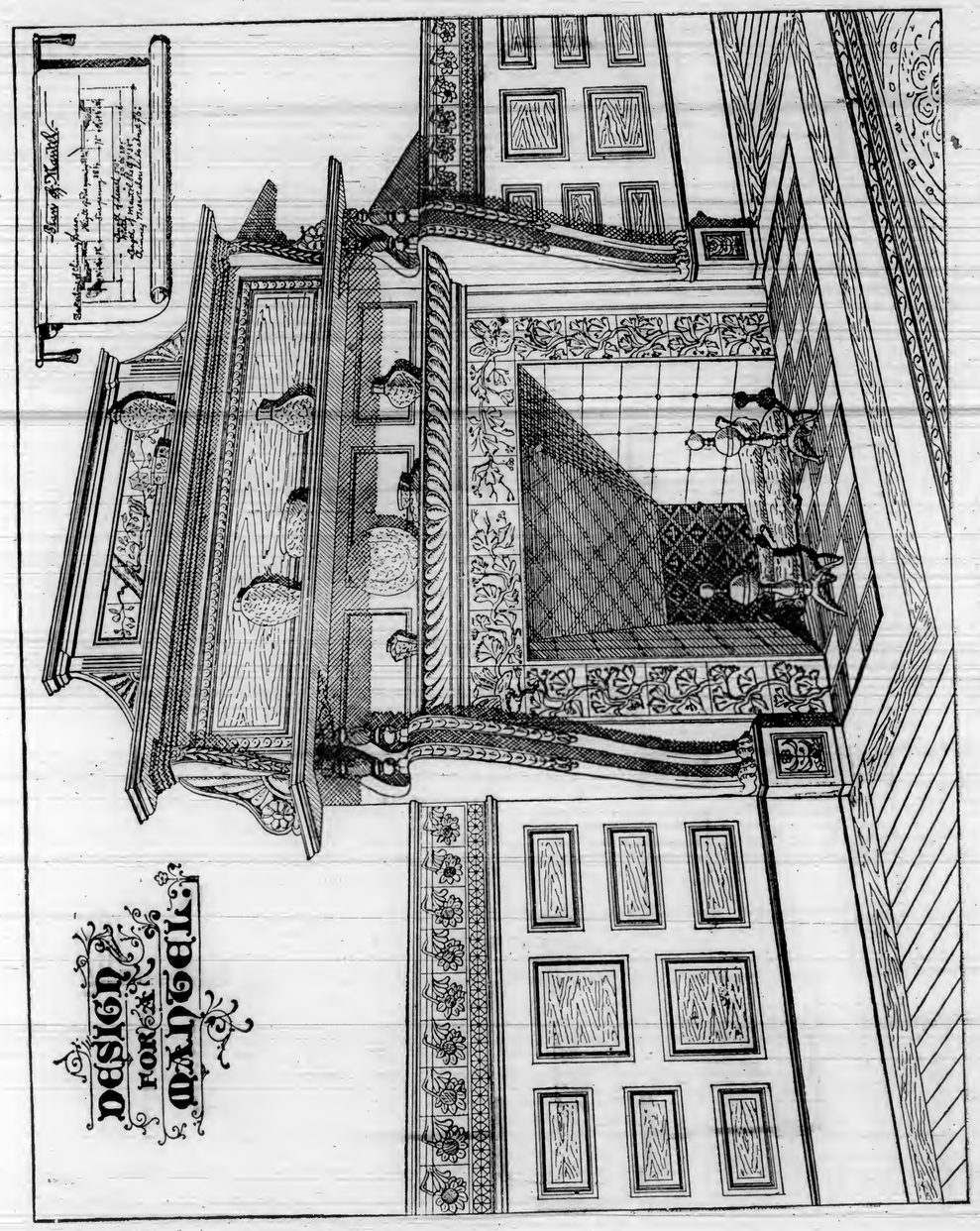
We hope some of our mechanics will send us a solution of this problem.

BUSINESS MANAGER OF ARCHITECT:—Why is it we sometimes feel so cold in our back when sitting by a large fire in an old-fashioned fireplace, while at the same time we are scorching in front—no door or window being open to cause a draft? S. A. L.

ANS.—Because it is the nature of cold air to *rush toward hot*, and not hot air to cold. On this account, the doors should never be placed directly opposite the fire-place.

CALIFORNIA ARCHITECT:—I have a post, the lower half of which is to be square. The upper half is to be octagon shape, so that the angles of the octagon shall be in the middle of each side of the square. Will you please illustrate a simple method by which I can draw the octagon?

ANS.—Let A B C D be the square. Draw the diagonals A D and C B and the center lines *e f* and *g h*. From the center *i*, with a distance equal to half the width of the square, as *i h*, mark on the diagonals the points *k l m n*. Join *e k*, *k g*, *g l*, etc., and you have the figure required.



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BUSINESS MANAGER OF ARCHITECT:—An illustration of a simple way to bisect an obtuse or an acute angle would be thankfully received by one who has made a study of the problem in your last, in answer to "Valley Home." Will send you a different solution from your own, and you can use it at you think best.

L. T. B., Sonoma.

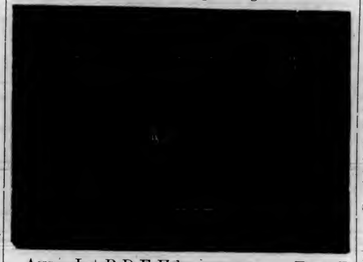
ANS.—Extend line C E. With C as a center, and any radius, draw an arc cutting at A B, which join. Draw C D parallel with A B. Draw line E D square with line C D, cutting at D, and angle A E is bisected.

SAWDUST from box-wood is very useful in cleaning jewelry.

BUSINESS MANAGER OF ARCHITECT:—I have selected a site for a large house, but before building, sank a well to see how far water was to be found from the surface. The first two feet was a rich loam, then four feet of very stiff clay, then quicksand, in which the workmen did not seem to make much headway. What I want to know is: Is such ground capable of holding with safety a large two-story house with brick basement? J. K. R., San Diego.

ANS.—It depends on the skill of your architect. If your footings are broad and compact, your building will stand as well as if built on solid rock. St. Paul's Cathedral, one of the largest and weightiest buildings in the world, stands upon a layer of clay only from four to six feet thick, above a quicksand forty feet deep; yet from the breadth and compactness of its footings, the goodness of its masonry, the equipoise of its several parts, and the masterly skill with which it is joined together, it is freer from flaws and settlements than all other great buildings in the world, however good their foundations.

BUSINESS MANAGER OF ARCHITECT:—Will you please illustrate a method for setting a gauge for an octagon without drawing the figure. B. Y.



ANS.—Let B D E H be any square. From B with the radius A B, draw A C. Set the gauge to equal C H.

SMOKY CHIMNEYS.—We have received a very lengthy article in regard to a cure for smoky chimneys. A gentleman has just finished a fine mansion, but is "bothered to death by volumes of smoke pouring out of the wrong end of them." We would have to make a personal examination before prescribing a remedy. In this connection it would be well to heed the advice of Dr. Franklin: "Should the chimney of a house, for want of previous consideration, be found to smoke, no afterthought will compensate this want of forethought. And he who has begun in this manner can only expect to have the ill-construction of a chimney to combat with, which is often impossible to alter." There is no greater mistake than supposing that smoky chimneys were unknown before our times, and that the unsightly contrivances on their tops—frequently abortive—are the notable inventions of the present day. From the first introduction of flues, smoky chimneys have been always proverbial nuisances, although from obvious causes such complaints were infinitely fewer than they are now. Smoke often returns into a room of a morning when the fire is first lighted, not from a fault of the chimney, but from the cold air in the flue, which prevents the smoke getting up till the chimney is warmed, and the air in it rarified.

CALIFORNIA ARCHITECT:—Can you tell me when *files* were first used? What are *lightning files?* VALLEJO.

ANS.—Would respectfully refer our inquirer to I Samuel, thirteenth chapter, twenty-first verse. It will interest him, and no doubt others, to make researches, and find out how long before that time files were *first* used.

The term *lightning*, as applied to a file, is known principally by those using the saws of that name, and to some extent by those using other cross-cut, M-shaped, saw-teeth.

BUSINESS MANAGER OF ARCHITECT:—Three men are carrying a stick of timber thirty-two feet long. To insure an equal weight to be carried by each, how far back from the end of the timber should a bar be placed, so that two men having hold of the bar and one at the end of the timber shall have each an equal weight to carry? Suppose one end of the stick is larger than the other, is there a rule by which we can easily ascertain where the carrying-bar should be placed?

SUBSCRIBING MECHANIC.

ANS.—1st. Eight feet, or one-quarter of the length of the timber. This will apply to any stick of equal thickness and width throughout.

2nd. Find the center of gravity by balancing the timber across a lever. From this center the man at the end must be twice as far as the two men with the bar.

The above is the rule that is generally used by our mechanics. Suppose, however, that the stick is round, eighteen inches diameter at one end, four inches at the other, and twelve feet long. Will some of our friends inform us how the rule would operate in such a case?

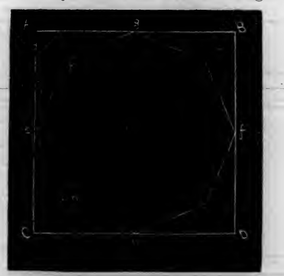
Suppose a stick of timber is thirty-two feet long, twelve inches diameter at one end, eight inches at the other, and it is necessary for the small end of the stick to be placed in the building first. Now, with five men carrying the stick—two pairs having carrying-bars, and one on large end—how will the men have to be placed, so that each will carry an equal weight?

We hope some of our mechanics will send us a solution of this problem.

BUSINESS MANAGER OF ARCHITECT:—Why is it we sometimes feel so cold in our back when sitting by a large fire in an old-fashioned fireplace, while at the same time we are scorching in front—no door or window being open to cause a draft? S. A. L.

ANS.—Because it is the nature of cold air to *rush toward hot*, and not hot air to cold. On this account, the doors should never be placed directly opposite the fire-place.

CALIFORNIA ARCHITECT:—I have a post, the lower half of which is to be square. The upper half is to be octagon shape, so that the angles of the octagon shall be in the middle of each side of the square. Will you please illustrate a simple method by which I can draw the octagon?



ANS.—Let A B C D be the square. Draw the diagonals A D and C B and the center lines *e f* and *g h*. From the center *i*, with a distance equal to half the width of the square, as *i h*, mark on the diagonals the points *k l m n*. Join *e k*, *k g*, *g l*, etc., and you have the figure required.

BUS. MAN. OF ARCHITECT.—(1) What is alkali? (2) What will be the effect on a brick wall where the bricks have been made with alkali-water? (3) Does alkali-water have any effect upon mortar?

SUBSCRIBER.

ANS.—(1) The term alkali is of Arabic origin; *kali* being the name of the plant from the ashes of which an alkaline substance was first procured. But chemistry and science have developed many other alkalies—vegetable, mineral, and volatile, to which our limitedness of space will not permit us to refer at length. We presume, however, that "Subscriber" alludes particularly to the alkaline or whitish incrustations which so often appear upon the face of brick walls erected in this city. We have not made nor seen any analysis of this substance, and therefore cannot state its special properties; but it is generally accepted as being alkaline-salt, produced by salt water used in the manufacture of the bricks. (2) As illustrated in the erection of hundreds of buildings in San Francisco, it produces the incrustation referred to, causes perpetual dampness inside of buiidings where such bricks are used; and from the fact that cement finishes upon the exterior faces of such walls, and the interior plastering of such buildings, when brought in contact with the bricks, soon decomposes and scales off, establishes the injurious effects in bricks so made. And the fact that such bricks are universally rejected by all architects, engineers, and persons familiar with, and qualified to determine the value of building materials, sufficiently sustains their unsuitableness for building purposes. (3) It does, for the reasons above stated in answer (2). The alkaline-salt perpetuates dampness, and consequent decomposition in mortar materials.

ED. ARCHITECT:—Will you be kind enough to give me a brief description of the way common nails are made?

APPRENTICE.

ANS. The details of construction are numerous and too complex for explanation without diagrams elaborately described. The iron is first rolled into plates having a thickness corresponding to that of the nail to be made, measured from one flat side to that of the other, and a width somewhat greater than that of the finished nail. When the nails are to be annealed for clinching, the length of the plate is transverse to the grain of the iron, in order that the grain may be lengthwise of the finished nail, to insure greater flexibility in clinching. The plate is then placed in a feeding device, which feeds it forward to dies or cutters, which cut a tapering blank from the end of the plate. This blank is then gripped by holding jaws, which clamp it firmly, while a punch or header abuts against the widest end of the blank, and upsets a sufficient portion of the metal to form the head.

In one somewhat noted machine, the plate is made of a width sufficient to permit blanks for a number of nails to be cut simultaneously from its end. In this apparatus, rotating cutting dies are used to sever the blank from the plate, and the nails by this machine are made with chisel-shaped points.

CEMENTING LABELS TO METALS—For attaching labels to tin and other bright metallic surfaces, first rub the surface with a mixture of muriatic acid and alcohol; then apply the label with a very thin coating of the paste, and it will adhere most as well as on glass.

THE demand for bound volumes of this journal for 1880 has been such that we have had 500 additional copies bound, which we will send to any address at the reduced price of $2.00 per volume.

Our Illustrations.

We are anxious to improve this journal in every particular, and none more so than in its plate department. In time we shall produce them as finely executed as those of any journal published.

Plate No. 1 represents a well-arranged and convenient country residence of moderate cost; containing parlor, sitting-room, dining-room, kitchen, laundry, pantry, closets, etc., on main floor, with conservatory at one side, and veranda in front. Also five chambers, two bath-rooms, dressing-room, and ample closet conveniences, on second floor.

Nos. 2 and 3.—A country residence in Eastlake style, by H. D. Mitchell, architect. The plans explain themselves—with entrance hall, parlor, dining-room, kitchen, pantries and closets on main floor; and five chambers, bath-rooms, closets, etc., on second floor, and roof-story in the center section.

Nos. 4 and 5 present a front elevation, designed for a special purpose, but which was substituted by another in the Eastlake style, which will appear in a future number. The elevation and plans shown will make a fine residence for either city or country adoption. The rooms are large, and the general arrangements complete and convenient.

No. 6.—An inexpensive design for wooden mantle.

We name no sum as the approximate cost in either case, for the reason that no correct estimate can be made without complete specifications; and the additional fact that the cost of buildings can easily be varied one hundred per cent. or more, according to finishes adopted and applied; and the further great reason, that those who intend to build should consult and engage a *competent* architect, carefully avoiding the *frauds* who disgrace the profession by their ignorance of all correct knowledge of the science of house construction.

Brick Making Fifty Years Ago.

A correspondent of the Pittsburgh *Chronicle*, writing from New Cumberland, W. Va., says: "A little over fifty years ago one Sam McCoy made the first fire-brick here in Hancock County. A comparison of the way he prepared the clay then and the way it is prepared now would show what a stride the brick business has made in keeping pace with the times. McCoy spread the clay out in thin layers and tramped it fine by oxen; he then made brick and shipped them south. In 1831 Mr. Freeman came here and started a small yard on Gable Run; the molding was done by Thomas Anderson. Year after year the business increased, and machinery was erected to suit the occasion, but since 1860 the greatest strides have been made, so that at the present time, one, to make examination of the different works, would think that it would be impossible to make any other improvements in the machinery line. At some of the works they have machines by which they make 25,000 and 30,000 per day. We now, under the present facilities, manufacture about 22,000,000 brick, and prepare for market about 50,000 tons of fire-clay. Besides this we manufacture quite an amount of sewer-pipe, and all branches of terra-cotta work, probably in the neighborhood of 10,000 tons annually. All the raw material we find imbedded in our hills, and during the winter season gives employment to our people in mining it. Besides this, we have the largest carbon-black works in the United States. Here this carbon is manufactured from natural gas, which is found in large supplies at the Clifton brick-works, owned by Messrs. Smith, Porter & Co. They utilize this gas for burning brick, for running their engines, and everything where fire is necessary."—*The Mechanic.*

The Perfection Water Closet.

The above engraving shows the *working parts* of a California Water Closet, which is being generally introduced all over the East, as well as this city. It is the invention of Messrs. Milne & Gantz. It is altogether new in its general features, and therefore merits notice.

Many of our Eastern exchanges contain the following—illustrating that California devices (sometimes at least) secure acceptance and indorsement in the great centers of manufacturing interests east of the Rock Mountains. We should be derilict in duty to our California inventors, should we not notice such approval of our home production.

"It is universally conceded that a water-closet, to be sanitary, must be so constructed as to retain a large body of water in the porcelain bowl, and have an automatic valve, so that in case the body of water is removed, either by leaking or siphonage, the valve will again fill the bowl automatically. It must also have an overflow, so that in case of any disagreement of the supply valve the water will be carried off instead of overflowing. The water-closet we offer has not only all these advantages, but we consider it the most perfect and the most simple ever invented. It is so constructed that there is no fouling chamber, and architects and plumbers can see at a glance that no closet is more hermetically sealed, with or without a trap, against all smell and sewer gases. The rubber ball is made for steam, and will last ten years. The working of the float, shutting and opening the valve, is so gentle and smooth that nothing can get out of order. The iron part inside is enameled, and we will sell nothing but enameled ones, as all iron, after some time, will absorb the soil, and is bound to produce more or less smell in the room. This advantage will make it, besides, perfectly sweet and clean."

BURSTING POWER OF ICE.—Ed. Hagenbach experimented, during the past severe winter, upon the bursting force exerted in the expansion of water when freezing. Two interesting experiments were made with cast-iron hand grenades. The outer diameter was fifteen centimetres (5.9 inches), the inner diamster 15 centimetres (5.04 inches). The shells were filled with water, closed with a screwed iron plug, and exposed to the cold. Both shells were broken, and a curved thread of ice was projected, by means of an ice column, from the upper surface. One of the plugs was evidently thrown out with great violence, and to such a distance that it could not be found. The curvature in that case was bent upward.—*Wiedmann's Annalen.*

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

Plumbing Inspection Law of New York.

The Sanitary Engineer states: "That the bill to secure the registration of plumbers and the supervision of plumbing and drainage in New York and Brooklyn, has become a law, notwithstanding the risk that was incurred of killing it, by attempts to amend on the part of certain plumbers of that city, who, we think, were ill-advised and mistaken in their efforts. No doubt many reputable plumbers were induced to sign a petition against the bill, solely through a misconception of its scope and what it was contemplated to secure, and also to a misapprehension regarding the character, intelligence, and purpose of those who are to be intrusted with its enforcement.

"We think that our leading plumbers should show a disposition to give the Board of Health a fair chance, and set an example by promptly applying for registration, and not wait until March next. It is our purpose to print the names of the master plumbers who register, in the order in which they make application.

"Before another year rolls around, we believe the well-meaning men who opposed the measure will congratulate themselves that their efforts were unsuccessful."

This journal has heretofore recommended the enactment of a law or municipal ordinance for San Francisco similar to what we suppose the New York law to be; for the reason, that a large proportion of the plumbing work done in this city and in other sections of the Pacific Coast, is of the most rascally character; and we hold that stringent laws should be in force which would entirely abolish, or at least abate, a system of privilege which permits any scallawag to hang out his "Practical Plumber" sign, by which many innocent parties are misled into plumbing engagements with parties who are entirely incompetent to do any sort of plumbing work as it should be done.

THE IRON GIRDERS or lintels being used in the construction of the Phelan building, on Market street, to carry the outside walls of the superstructure above the store story, consists of six sections of double-flanged rolled iron, with three-quarter inch webs, making total size 21 by 23 inches. The six pieces are bolted, strapped, and bound together in the strongest manner, in lengths to suit the several spans. They were made by Messrs. J. R. Sims & Son, at their extensive works on Beale street, and are said to be the heaviest girders ever made or used on this coast for a like purpose. The rolled iron is the product of the *Pacific Rolling Mills* of this city, situated at the Potrero, and which turns out all the usual devices in rolled iron.

The carrying capacity of the girders referred to being perhaps ten times greater than the loads that will repose upon them, there can be no question as to sufficiency of strength.

Some architects practice the rule in determining the size of wall-girders or lintels, to increase dimensions correspondingly with the number of stories to be erected. But in our opinion, the practice is an error. We contend—the span between bearings being equal in either case—that the weight upon a girder ceases at the point in a wall where the crown of an arch described from the center point between the bearings terminates. It would be an exceedingly poorly-constructed wall in which a hole of any given dimension might not be cut, without more of the brick material falling than would form a semi-circular arch; in but few cases as much as this, so long as there remain sufficient buttresses at the sides to prevent spreading. Consequently, with this as a correct conclusion, the main consideration should be in the bearing strength of the columns or piers receiving the girders, which are required to carry the entire weight above them, including that which rests upon the girders or lintels; and when more metal is used for girder purposes than is necessary to meet the arch suggestions made, with proper and usual allowance added for safety, expense of construction is increased, without any corresponding benefit or security.

JUDGE MACKENZIE, of Toronto, has rendered a decision of some importance to the Canadian architects. The local statute allows an extra fee to a certain class of witnesses, but to the argument that architects ought to be included in this class, he replied that architecture could not be considered a profession in the Province, inasmuch as architects are not required to pass a government examination, are not organized by law, and are not recognized by statute. He added that he had in a previous case advised the architects to combine and seek incorporation. This advice we can heartily second. Nothing would tend more to confirm and establish the standing of the profession, already honorable in Canada through the character and work of many of its members, than such association as is indicated in Judge Mackenzie's remark. By this means the credit of individual probity and talent would be extended to the whole body, while every member, instead of feeling himself isolated, would be sustained and encouraged in his best efforts by the countenance of his fellows. All architects who have practised in the smaller towns can appreciate this privilege, which not only helps them to resist that tendency to become the slaves of their clients from which they often suffer, but by their relation with their fellows keeps alive that interest in the work of others which is of so much importance in fitting them for a wide range of professional duty. If we are not mistaken, the American Institute of Architects includes Canadian members, but if a similar society should be formed in the Dominion, it will, no doubt, cheerfully give up its claim to represent the whole continent, and will welcome its younger rival with all possible good offices.—*The American Architect and Building News.*

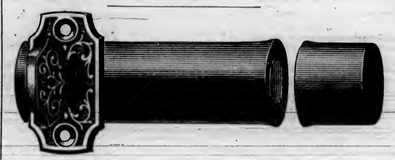
SOMETHING in the shape of houses between the cheap tenement and the palatial residence is loudly called for in all our cities. People of moderate means, but of respectable connections and proclivities, want decent houses in respectable localities. It may be said that they are too fastidious, but tastes are not to be discussed. A man cannot be urged into liking what he dislikes. He may assent to the statement that he is no better and earns no more than the man with whose social tastes he has no affinity, but he will not associate with such a man, and does not care to be his next-door neighbor. Some houses are building in this city which will meet the requisition of the "respectable men of moderate means," but many more are wanted, as the great demand for decent tenements shows. Such men make good tenents, and it will pay well in the long run to build decent houses for them.—*Springfield* (Mass.) *Union.*

Other cities than Springfield need decent tenements.—*Sanitary Engineer.*

Here in San Francisco also.

New Instrument for Computing Distances.

An instrument of simple construction has been devised for measuring the distances and heights of mountains, the apparatus consisting of a common telescope, with a level attached, a scale of equal parts in the eye-piece, and with a mirror of plate glass fastened to the object, so that it can be seen at an angle. Two images are visible—one through the glass, and the other by reflection from its surface—and any two objects may be made apparently to coincide by turning the mirror through the proper angle. Selecting the mountain whose distance is to be measured, and as the other object, any convenient, well-defined point, the telescope is moved through a known distance, and the apparent change of position of the two images is measured by the scale. From this the distance may be measured with the accuracy needed for an ordinary map. The altitude is then determined by leveling the telescope, and reading the apparent elevation from the graduated scale, which is now turned round. Unlike the theodolite, it does not involve the finely-graduated circle or delicate mounting.



Ives' Burglar-Proof Door Bolt.

The above cut illustrates the perfection to which our inventors have attained in providing a simple, yet strong and secure door bolt. For simplicity and safety they cannot be excelled. It is not necessary to be a mechanic to insert these bolts. Get a 13-16 inch bit, with a brace. About one foot above the lock, bore a hole, in depth corresponding to the length of the bolt. Use a ⅞ bit for the knob or thumb key. Exactly opposite in the door-jam, bore a hole for the striking-plate. Use exactly these sizes of bits and you will be sure to be right, as the bolts are made to drive in exactly that size. *No other cutting or fitting is required.* Two small screws fasten the escutcheon in place.

This cut represents the same features as No. 1. The same sizes of bits are required, only the face plates require a little more time to insert. These bolts are made in different styles of finish, ordinary nickel, and real bronze trimmings. This bolt is intended for use on either inside or outside doors. Hobart B. Ives, of New Haven, Connecticut, is the patentee and manufacturer by whom the trade is supplied. The Gordon Hardware Company are the agents in this city. Such, however, is the popularity which these bolts have attained, that they are to be found in every hardware store in the State. Samples can be seen at this office.

Market Reports.

With larger receipts, there is less lumber on hand than at corresponding date of last year. The Pine Lumber mills are generally busy. We understand that many of the redwood mills are idle from a scarcity of logs. There is no change in prices.

Receipts since January 1st:

Lumber	99,124,644
Shingles	29,807,110
Laths	9,301,700

A correct price list of lumber will be found below:

Pine.				
Common Rough, up to 40 feet, per M feet				$21 00
"	41 to 50	"	"	22 00
"	51 to 60	"	"	23 00
"	61 to 70	"	"	25 00
"	71 to 80	"	"	27 00
Refuse Rough			"	17 00
Common Rough, sized with planer $2 additional on above rates, per M feet.				
No. 1 Flooring, 6 inches and over,			"	28 00
"	4	" and under, and 1¼x4 and 1¼x6		
Flooring and Stepping				30 00
Rough Clear for Flooring, $1.00 less than above rates.				
Second quality Flooring add stepping,			per M feet	22 50
Ship Plank, Rough			"	26 00
"	Planed 1 side		"	30 00
"	" 2 sides		"	31 00
Deck Plank, Rough			"	31 00
"	Dressed		"	35 00

Laths	per M	3 50
Wool Slats	"	10 00
Shakes	"	9 00
Redwood Posts	per piece	11

Redwood.

Rough Merchantable	per M feet	21 00
" Refuse	"	17 00
Surface No. 1	"	32 50
" 1 x 6	"	30 00
" No. 2	"	25 00
Rustic, No. 1, 1 x 8	"	30 00
" No. 1, 1 x 10	"	32 50
" No. 2	"	27 50
" Under 10 feet	"	27 50
T. & G., 1¼ x 4 and 1¼ x 6	"	31 50
" 6 in. 12 ft. and over	"	30 00
" " 7 to 11 feet	"	28 00
" " under 7 feet	"	25 00
" No. 2	"	25 00
T. & G., Beaded, 12 feet and over	"	32 50
" " 7 to 11 feet	"	28 00
" " under 7 feet	"	25 00
Half-inch Surface	"	27 50
Pickets, Fancy	"	25 00
" Rough, Pointed	"	18 00
" Square	"	15 00
Siding, ⅝ inch	"	22 50
Shingles	per M	2 25
Battens, ⅝ inch, lineal feet	"	⅜c

NAILS.—Remain the same as our last. Since January 1st we have imported 93,185 kegs.

10 to 60 pennies, are quoted at		$3 75
8 " "	"	4 00
6 " "	"	4 25
5 and 4 " "	"	4 50
4 and 5 pennies, brad heads, at		5 00
6 " "	"	5 25
8 " "	"	5 00
10 and upward	"	4 75
3 penny fines	"	7 25

PAINTS.—A slight improvement in the market is noted. Pioneer lead sells for 8 and 8½ cts. Atlantic 8½ and 9 cts.

Building Intelligence.

The merry stroke of the hammer is now heard in every part of our State. Advices from all sections of the country present a very favorable showing for an increased activity in building operations during the fall months. We present a very complete report for this month in this city. It will be noticed that very few large or expensive buildings have been commenced since our last. We would extend our thanks to friends in the country who have forwarded building intelligence. We again call upon all to furnish us with a description of buildings being erected in their neighborhood. Be sure and have the information written so there cannot possibly be a mistake in regard to locality or figures.

SAN FRANCISCO.

Two-story frame dwelling on Van Ness avenue, near Jackson. Owner, Paul Fleury; architects, Huerne & Henricksen; contractor, ——; cost, $7,000.

One-story cottage on Polk street, near Fulton. Owner, D. Dockery; architects, Huerne & Henricksen; contractor, ——; cost, $2,000.

Improvements to M. J. O'Connor's building on Pine st., near Front. Architects, Huerne & Henricksen; contractors, McGowan & Butler; cost, $3,400.

Two-story dwelling with basement, on Capp street, near Sixteenth. Owner B. H. Madison; architect, J. G. Behrens, contractor, L. D. Frichette; cost, $8,060.

Three-story frame building with brick basement, on Post street, between Stockton and Powell. Owner, Verein Eintracht; architect, A. Schroepffer; contractor, F. Klatt; cost about $10,000.

Lapidge street, between 18th and 19th, two-story and basement frame dwelling. Owner, Alessandro Brichetto; contractor, L. Cunio; cost about $2,000.

Two one-story and basement frame dwellings on Minna street, west of Tenth. Owner and builder, Chas. A. Ackerson; cost about $2,500.

Two-story frame building for a bakery, on Polk street near Bush. Owner, John Feldbush; architect, W. Schrof; contractor, — Miller; cost, $6,000.

Improvements on dwelling 1407 Bush street, near Polk. Owner, J. D. Feldbush. Day's work; cost about $2,000.

Improvements on Bay View Distillery. Owners, Scofield & Tevis; contractor, P. J. Smith; cost about $20,000.

Vermont st. between Colusa and Yolo sts., two-story frame dwelling. Owner, M. Connolly; contractor, J. G. Chase; cost, $2,800.

Contract for carpenter's work on L. L. Baker's house, corner of Franklin and Washington streets, was let to Chas. H. Ackerson. Architects, Curlett & Eisen; cost, $13,000.

Additions and alterations to house on Jackson street, bet. Stockton and Powell sts. Owner, — Tinoco; architect, A. Pissis; contractor, Lienard; cost, $2,000.

Repairs on house on East street, between Mission and Market. Owner, S. L. Johnson; architect, A. Pissis. Day's work; cost, $2 500.

One-story frame cottage on corner of Filbert and Fillmore. Owner, Pat McCoy; contractor, J. G. Chase; cost, $1,050.

Two-story stable on Capp street near 21st. Owner, J. D. Spreckles; architect, C. Geddes; contractor, W. F. Fletcher; cost, $1,700.

Episcopal Church on Fulton street, between Fillmore and Webster. Architects, Wright & Sanders; contractor, Burpbee; cost, $7,200.

Monument for Pope & Talbot at Masonic Cemetery. Architects, McDougall & Son; cost, $2,500.

Two-story frame dwelling on Washington street. Owner, J. T. Dunn; architects, Percy & Hamilton; contractor, A. Jackson; cost, $4,900.

Additional story to house on N. E. corner Bush and Battery sts. Owner, — Newman; architect, W. Mooser; contractor, J. McCarthy; cost, $4,000.

Additional story to building, previously reported, on Mission st. between 3rd and 4th. Architect, H. T. Bestor; contractor, Chisholm; cost, $1,500.

One-story and basement frame cottage on Baker between California and Sacramento sts. Owner and builder, Geo. Hinkle; cost, $1,800.

Barn on corner Bush and Baker. Owner, J. W. Wetmore.

Two-story frame dwelling with brick basement, on Union st. between Mason and Taylor. Owner, Mrs. Lakmann; contractor, — Hansen; cost about $3,500.

Two-story frame dwelling on Roach street between Filbert and Green. Owner, H. McCormack; builder, T. Daniels. Day's work. Cost about $1,200.

Two-story frame dwelling on Ridley street, near Guerrero. Owner, J. Anderson. Day's work. Cost about $2,000.

Additions and alterations to building, 456 Guerrero; cost about $400.

Two-story frame dwelling with brick basement, on S. E. corner of Octavia and Sacramento streets. Owner, S. B H. Cooper: architects, Molera & Cebrian: contractors, brick work, Smith & Downs; carpenter work by the day; cost, $16,000.

Store-house for Pioneer Woolen Mills. Superintendent, Charles Furth. Day's work; cost, $5,000.

Two-story frame building for boarding-house at Pioneer Woolen Mills. Day's work; cost about $1,000.

Additions and alterations to house, 1315 Green street near Larkin. Owner, E. W. Lewis; builder, E. W. Lewis; cost, $3,000.

Three three-story frame dwellings on west side Kearny st. between Vallejo and Green. Owner, — Kohler; cost about $5,500.

Three-story frame building for furniture factory, at junction of Market, Polk and Fell sts. Owner, A. N. Levy; contractor, F. Goodwin; cost, $3,000.

One-story and basement frame dwelling on Dolores st., between Valley and 29th sts. Owner and builder, R. Bergfeld; cost $1,400.

Two-story frame dwelling on Guerrero, between 24th and 25th sts. Owner, — Kriss; architect, W. Winterhalter; contractor, H. Thom Wohrden: cost $2,500.

Two one-story cottages on 24th street, near Guerrero. Owner, — Meeker; contractor, Chas. Girvin; cost, $3,000.

One-story frame dwelling on 30th street, between Warren and Bartlett. Cost about $800.

Improvements and alterations to dwelling on 19th street near Valencia. Owner, — Lockhardt; contractor, F. X. Gougeon; cost, ——

Two-story frame cottage on 19th street, between Guerrero and Valencia. Owner, — Edwards; contractor, J. Willcox; cost, $1,500.

Two-story frame cottage on 19th street, between Valencia and Guerrero. Owner, — Edwards; contractor, J. Wilcox; cost, $1,200.

Engine-house for Union St. Railroad—two-story frame with brick basement. Contractor, Geo. Walker; Superintendent of Construction, W. H Milliken; cost, $25,000.

One-story frame dwelling on Treat avenue, between 24th and 25th sts. Owner, P. Toomey: contractor, P. J. Smith; cost, $900.

Improvements to frame building on Ocean House Road, near Industrial School. Owner, Chas. Haley; contractor, P. J. Smith; cost, ——

Buildings on corner Pine and Sansome are being demolished, preparatory to the erection of a five-story and basement brick building. Full particulars in our next.

Additions to dwellings on Stevenson street, between 9th and 10th. Cost, ——

OAKLAND.

Two-story cottage on Telegraph avenue, near Hawthorne st. Owner, John Brereton; architect, John Newsom. Day's work. Cost about $4,000.

Alterations to house corner Sixth and Broadway. Owner, Mrs. Collins; architect, C. Mau; contractors, Haskell & Smilie; cost, $2,000.

Brick building on Eighth, between Broadway and Franklin. Owner, Mr. Wimmer; architect, C. Mau. Day's work. Cost, $5,000.

Alterations to house corner of Eighth and Myrtle streets. Owner, Dr. Tremly; architect. C. Mau. Day's work; cost, $3,000.

One-story frame dwelling near Shell Mound Park. Day's work.

One-story cottage on Peralta street, between 14th and 15th. Owners, Jordan Brothers; architects, T. D. Newsom & Co. Day's work; cost, $1,500.

Two-story dwelling on Eighteenth between Chestnut and Linden sts. Owner, Mrs. Ward; architect, C. Mau; contractors, Hill & Dahle; cost, $2,500.

ALAMEDA.

One-story cottage on corner of Buena Vista avenue and Walnut street. Contractor, E. B. Hayes.

Cottage on Alameda avenue near Willow street. Owner, Mrs. N. J. Ashton; builder, J. W. Bones.

Cottage residence on Buena Vista avenue, near Park street. Owner, — Miller.

SAN JOSE.

Brick store on First street, between Santa Clara and San Fernando sts. Owner, D. M. Delmas; architect, Theo. Lenzen; cost, $11,600.

Frame dwelling at the Willows. Owner, Lewis Benhisel; architect, J. T Burkett. Day's work; cost, $2 000.

Frame dwelling on Sixth street, between Santa Clara and San Fernando sts. Owner, David Renaldo; architect, J. O. McKee? cost, $1,550.

Frame dwelling on corner of Third and Julian streets. Owner, S. O. Houghton; architect, J. T. Burkett. Day's work; cost about $3,600.

Frame dwelling on First street. Owner, C. T. Ryland; architect, Theo. Lenzen. Day's work. Cost, $5,000.

Dwelling at the Sansevain Villa. Owner. Wm. Ross; architect, W. C. Hamilton; cost, $3,700.

Frame dwelling on the Los Coches Rancho, two miles S.W. from San Jose. Architect, W. C. Hamilton; owner, M. Ross; cost, $2,700.

The Eagle Brewery is having large additions added, at a cost of about $4,600.

A silk factory is being built at a cost of about $1,600.

MOUNTAIN VIEW.

Two-story brick building, 80 by 88. Stores on first floor hotel above. Owner, Martin Murphy; architect, John Gash.

SACRAMENTO.

Old City Water Works Building on N. E. corner Front and I street is being changed into a police station. Owner, City of Sacramento; architect, A. A. Cook; contractor for brick work. Henry Tuston; carpenter work by the day. Cost, $8,000.

Three-story brick building on Fifth street, between J and K. Owner, L. L. Lewis; architect, A. A. Cook; contractor, H. Coates; cost, 7,500.

Two-story frame building with brick basement on Eighth street between M and N. Owner, M. Hanrahan; architect, A. A. Cook; contractors, Carle & Crowley; cost, 3,500.

One-story frame cottage on Seventh street, between P and Q. Owner, S. Sinsy; architect, A. A. Cook; contractor, M. Madden; cost, $1,750.

Alterations and improvements to M. E. Church on 7th street between J and K. Architect, A. A. Cook; carpenter contractor, U. M. Reese; cost, $1,500.

RED BLUFF.

Three-story brick building on south-east corner of Oak and Main streets. Size, 36½ by 115. Owners, Masonic Order: architect, A. A. Cook; contractor, Hans Hansen; cost, $22,595.

The Odd Fellows are erecting a two-story brick building on Main street; architect, A. A. Cook.

BOISE CITY.

The contract price for the school house reported in our last should have been $48,000, instead of the amount stated.

LIVERMORE.

Frame building, with brick and stone cellar, on Livermore avenue, to be used as a soda factory. Size, 26 x 38. Owners, Gardemeyer Brothers; contractors, Smith & Hatch.

Two-story frame dwelling, with a one-story brick addition for kitchen, east of town. Owner, Henry Callaghan. A large barn is being erected on the same premises.

MISCELLANEOUS.

BENICIA.—Mr. J. L. Junes is building a house in the western addition.

LOS ANGELES.—Two-story barn near town; 50 x 135. Owner, L. J. Rose; cost, $12,000.

SUISUN.—Two-story frame dwelling for Senator J. F. Weindell. Builders. Hall & Co.

FRESNO.—Mr. R. Madera is erecting a planing-mill and box factory.

RIVERSIDE.—Two-story dwelling on Sixth street. Owner, C. J. Aberdien.

SAN BERNARDINO.—Large brick hotel. Owner, Mr. Starke.

CLOVERDALE.—Brick wine-cellar, 50 x 110. Owner, Jas. A. Lawrence.

WOODLAND.—Cottage on Railroad street, near Lincoln avenue. Owner, John Jacobs; Builders, Myrick & Pool. Cottage on Sixth street, north of North street. Owner. Wm. Wishart.

Publication Notices.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

Modern Architectural Designs and Details, (parts 7 and 8,) published by W. S. Comstock, formerly Bricknell & Comstock, has been received. This series of "parts"—being books of plates exclusively—showing plans and details for buildings of various pretensions, is gotten up in excellent style, and should meet with extensive sale. Every architect and builder should supply himself with the full series. Price, $1.00 each "part" or number. Can be had, together with all books published by this enterprising firm, at the office of this journal, at publishers' prices.

The July 9th issue of the *American Machinist*, one of our most acceptable exchanges, makes a splendid appearance in its full dress of new type.

Numerous other meritorious publications would receive notice at this time, but together with a large amount of interesting matter on hand, are necessarily crowded out, notwithstanding the increase of pages in this issue of this journal. **We consequently urge upon our friends ONE AND ALL, to come up with Additional Subscriptions, so that we may be enabled to increase the number of its pages to 40, and so provide ample space for nearly double the present amount of reading matter.**

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The California Architect and Building Review.

VOLUME II. NUMBER 8. } SAN FRANCISCO, AUGUST, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect

AND

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,

Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 *per annum, with extra cost of postage when sent to Foreign Countries.*

Entered at the Post Office at San Francisco, Cal., as second-class matter.

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion..... $1 50

Outside of back cover, and page next preceding reading matter, per square, each insertion..... 1 25

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Building Activity.

Although building activities in San Francisco have by no means reached a "boom," they however present a healthful appearance. The entire force of skilled labor is generally employed, with occasional "worked out" breaks. Fair to active business prevails in all departments of trade, and but few are idle who would not be "expensive hands" at one-half the wages paid to competent workmen. This is particularly applicable to carpenters, among whom many of the lesser class are employed, while that class who entertain a natural hatred of labor in any form—constitutitutional idlers, who prefer *poverty* with *rest*, rather than *comfort* with "*too much labor*"—are as usual wasting the hours of precious to every industrious man, but of no value to the class referred to.

But general, *reasonable* activities prevail, giving a healthful tone to business of all kinds; for with the employment of the working classes dealers in all manner of materials and supplies feel the effect.

The consumption of bricks will be considerable during the near future, in the erection of the building heretofore noticed, to be erected for Mr. Andrew McCreary, corner of Pine and Davis streets; Senator Fair's building on Sansome and Pine, prepartory to the erection of which the old "Blumenberg trap" has been demolished; the new structure contemplated by Mr. Dean on Market street, for which the plans are prepared, and the tenants of the premises notified to leave; together with a number of other brick buildings in course of erection; all of which will not only engage the full force of journeymen bricklayers, but may be delayed for want of sufficient help.

The Lateral Support Question.

In view of the great interest manifest in the matter of "*Right of Lateral Support*," we have copied a lengthy article from one of our exchanges, giving an important decision in relation to the perplexed and perplexing question under notice. It will be read with interest by all architects, owners, and members of the legal profession.

Endless inquiry and questionings have been snbmitted to us, and our uniform reply has been and now is, that the laws and ordinances governing in this State are fully stated in two of our issues in 1880, (respectively, April, page 36, and July, page 67) by which it will be seen that the city ordinance provides that adjacent owners shall underpin the buildings to a depth of fourteen feet; but this ordinance is rendered inoperative and without force by the Code, which provides that "*coterminous owners are entitled to the lateral and subjacent support which his land receives from adjoining land*," etc., which in plain English means that the party building must underpin and support the property of adjoining owners at his own cost and expense.

The July number of this journal appeared on the 15th ultimo. On the 18th, the *Evening Bulletin* of this city pillaged our entire "Building Intelligence" report, without any due acknowledgment, simply omitting the names of some of the architects and builders engaged, and in the last line or two of the article adding a few words, for the purpose of *making its readers believe* that the matter extracted from our columns was "*Bulletin* enterprise." So it was—at our expense. The following letter sent to the office of our contemporary explains itself:

July 19th, 1881.

Editors of the Evening Bulletin:

GENTLEMEN:—Permit us to call your attention to the fact, that the list of *improvements, additions, and new houses*, published in your issue of Monday, July 18th, was copied in full from the columns of the CALIFORNIA ARCHITECT AND BUILDING REVIEW, without the proper or any credit due in such cases. We presume that the omission was an unintentional oversight, which you will have the *fairness* to correct in your next issue.

Respectfully, etc., etc.

At the time, we did not suppose that the *fairness* due and asked for would be forthcoming, as that is an article in which our contemporary but seldom deals, when other motives and purposes can be served or gratified by the opposite course. Of all the journals published upon this coast, there is none more boastful of its virtues, fairness, and enterprise than the *Bulletin*, nor any which more severely denounces what it conceives to be dishonorable and dishonest journalism in others. Is it not therefore truly surprising, that a journal so full of denunciation against irregularities in others, and pretentious in its own correctness, should practice that which is recognized as extremely disreputable journalism?

How much greater is the sin—crime—of the *Chronicle*, jumping from one extreme view of the "Baily ordinance" and "Spring Valley water question" within a few days—for coin, as the *Bulletin* intimates—than a deliberate act of plagiarism? Both are journalistic and moral irregularities; but the latter is the meaner, because the *smaller* method of making business capital, if not coin.

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**

Pacific Coast Association of Architects.

The regular meeting of the association was held on the 5th inst. The number present was small, presumably owing to the session being called during the busiest hours of the day, 2½ P. M. Many who had stated their intention to attend, failed to be present. Consequently a resolution was adopted that the future meetings be held in the evening. It is earnestly desired that a large if not full representation of the society be on hand at its next session, as matters of interest will then be introduced.

The announcement of the death of Mr. Vitruvius Frazee was received with profound sympathy for the bereaved widow.

Drawings were laid before the association by Mr. Gash of San José, representing a pyramidical tower 200 feet high, constructed with four principal corner supports, of four and three-inch hollow iron, united in their respective lengths by sleves, etc., and otherwise sustained and braced with transverse and diagonal iron rods and braces. The four corners are intended to rest in well-anchored foundations at each of the four corners of the two street-crossings. The proposition stated is, to erect several of these towers in San José, and surmount them with strong electric lights and reflectors, upon the presumption that four or five such lights will afford sufficient illumination within municipal jurisdiction.

In Memoriam.

It becomes our painful duty to notice the demise of the late Vitruvius Frazee, an honored and worthy member of the architectural profession in this city, who has died since the issue of our last number. Our personal acquaintance with him was limited; but those who knew him most intimately speak only in his praise as an intelligent, earnest, and conscientious gentleman. His sickness was caused by exposure to change of climate, and the hot sun and water of the Sacramento Valley, where he had been operating in the insurance companies' interest, as civil engineer. He has left a widow in *exceedingly moderate* circumstances.

This is the third time since the issuance of this journal as a monthly—in January, 1880—that we have been called upon to chronicle the death of brother professionals in this city. But while such occurrences are always surrounded with sadness to the living, they bring the repose of eternal rest to those who pass away, and renew the warning to all—Be ye also ready; for the brittle thread by which the living hold on to life may to any be severed ere another sunbeam shall break through the eastern sky, or the chill of another evening settle around the habitations of mankind.

Lemon Juice in Diphtheria.

Dr. J. R. Page of Baltimore, in the New York *Medical Record*, May 7, 1881, invites the attention of the profession to the topical use of fresh lemon juice as a most efficient means for the removal of membrane from the throat, tonsils, etc., in diphtheria. In his hands (and he has heard several of his professional brethren say the same) it has proved by far the best agent he has yet tried for the purpose. He applies the juice of the lemon by means of a camel's hair probang, to the affected parts, every two or three hours, and in eighteen cases on which he has used it the effect has been all he could wish.—*The Illustrated Scientific News.*

Sanitary Plumbing Laws.

In no large city in the Union is there less general interest taken in regard to sanitary matters than in San Francisco. We have ordinances and municipal regulations which prohibit and forbid violations of conspicuous sanitary principles, but these are observed by many more from the fear of prosecution and punishment than from a realizing sense of the consequences attendant upon their violation. It therefore follows that infractions are innumerable; for those who are controlled in their acts only by legal restraints evade and override them whenever possible to do so without danger of detection. Hence the necessity for stringent hygienic laws and regulations, and efficient means for their enforcement and observance. But the laws and ordinances bearing upon the subject-matter in hand are not sufficient, since they affect only the larger and more notorious features in connection with sanitary measures; while beyond these are other great and grave considerations unaffected by any legal restriction or control, and in which no other than individual interest, measured by the understanding, caprice, or avarice of each, is taken. The laws that exist will not allow those glaring acts and exposures which are notoriously offensive to sight and smell; but the tens of thousands of other means which produce sickness and death are passed by uncared for by any official provision. And the fact that yearly, thousands of the inhabitants of the Pacific coast are sent to untimely and premature graves by means of sewer gas and defective plumbing work, awakens not the slightest concern, nor stirs to action those who understand the seriousness of the fact stated; while in the eastern cities of our country and throughout Europe conventions of scientific men—scientists, professors of learning, sanitary engineers, skilled plumbers, architects, and learned divines—have been held to consider the great questions of sanitary import and advisability. No movement of the kind has ever been attempted upon this coast, other than such ineffective and incidental discussions as may have "occupied the hour" in debating clubs or other restricted connections. Voices from the tomb chide us, who are so indifferent to vital interests, to arouse ourselves from the lethargy and stupid indifference that has so long prevailed, and in sympathy with suffering humanity to use the wholesome means which nature has provided to counteract the evils which its decay imposes. We have again and again endeavored to enforce these considerations upon the minds of our readers, and shall continue to do so, with the hope that our well-intended efforts will not be wholly fruitless. As a result of discussions in conventions, by the secular press, and class journals in other parts of our own and in foreign lands, and the clearly demonstrated necessities of the case, New York, Illinois, and other States have passed "plumbing laws," the object of which is to protect the health of the respective communities, by instituting such regulations and control over the execution of plumbing work as will save the slaughter of tens of thousands by the foul sewer vapors which *are conveyed into homes and dwelling-places through imperfect plumbing work.* Equal with any other city in the world, San Francisco needs the best of hygienic regulations; for, while there are less of miasmatic conditions than in some other places, the strong winds of summer act as a powerful agency to force back the gases, and the high elevations of the greater portion of the city causes the sewers to operate as gasometers or retainers of the poisonous vapors; so that they contain a much larger volume of gas than sewers in other cities, where the altitudes of its avenues are less than in this city.

Beside this, there is no other place on earth where meaner and less skillful plumbing work is done, by a class of beings calling themselves "practical plumbers"—a title stolen from the truly practical and competent, many of whom we have in San Francisco, under which they disguise themselves, while neither knowing nor caring anything about the finer and essential points involved in skillful sanitary plumbing.

We have heretofore advocated, and still advocate, the enactment of such laws as will provide the necessary remedies, and the appointment of such inspectors as may be required to make such laws effective; with the additional provision, that every such inspector who shall be guilty of connivance, compromise, or neglect in the strict and faithful performance of his duties, be punished by imprisonment in the State prison for a period of ten years; thus making the penalty equal to that fixed by our statutes for the crime of manslaughter; at lower rates than which it should not be fixed, as every act of neglect or unfaithfulness might produce one or more deaths. And if penalties of like character attached, and were enforced in all cases of official irregularities, *without any possible escape*, all the howling and growling about dishonest officials would disappear quickly. It is because they can do it with impunity that rogues are so eager for office, and STEAL all that they can "get away with safely"; and *fraud plumbers* perpetrate their mechanical villanies, because the thing is possible.

Better than a Lien Law.

Lien laws are the outgrowth, the necessity vitalized by the rascalities and dishonesties of those who undertake contracts at prices below values, or with the intent to defraud and cheat; and that class of owners with whom strict honesty is only contingent; men who are not only willing to do wrong themselves for the sake of personal gain, but equally so to connive with others in concocting schemes *designed* to swindle those who may fall within their power. And that other class of mankind who never let an opportunity slip, by which they can avoid payment, however just the obligation or serious and severe the consequences of their rogueries.

The "better than a lien law" is this: that laws be provided which would impose *criminal* liabilities upon those who undertake contracts at less than right values, *when thereby others are made to suffer loss.* A law establishing the doctrine that men shall be held to strict accountability for their *errors of judgment* in matters which involve the interests of others would be wholesome in its effects, and corrective of nineteen twentieths of the irregularities which furnish arguments in favor of lien law enactment; which strike only at the *results* and leave the *cause* untouched. The damming up of streams, or changing their course, has no effect upon the source from whence they come. The source of all evils must be reached and corrected before a perfect remedy can be applied, and all remedies which stop short of the fountain-head, are in a degree, at least, ineffectual.

Dishonesties are enlarged and fraudulent designs shaped in ten thousand forms, because condemnation is spared to those who perpetuate them. Toleration of wrongs has been the fostering sun and the zephyr breeze that has vitalized and sustained them, and caused them to become not only possible without great discredit to the actors therein, but sometimes to make them almost fashionable. *O, it will soon blow over,* has encouraged thousands to make ten, twenty, or fifty per cent settlements, with as much more in the "reserve fund" laid away for personal purposes, because it can be done under the law, and without any considerable risk.

We hold that every man who engages in the contracting business, whether building houses or otherwise, who fails to pay his bills, should be liable and subjected to thorough legal investigation, with the alternative that unless *positive correctness and honesty* were shown in the transaction upon which default occurred, personal *criminal action* should be maintained; so that men who receive, misuse, and misapply moneys rightly belonging to others, would receive the punishment due to crime; crime, because the common law of the world proclaims and declares all obtainment of money or values belonging to one party by another, other than by correct and legitimate means, to be criminal in character. And we claim that our theory is sound, that a man loses equally and suffers as much from a loss, whether intentionally or accidentally imposed; and losses are equally not pleasing or enjoyable by the loser, whether the result of direct theft or the outgrowth of another's folly or ignorance. Hanging never restores the life of the victim of murder, but it inculcates a dread and fear on the part of vicious men lest the indulgence of brutal passions should compel them to gymnast upon the end of a rope. And if business defaults and irregularities were made *punishable under the law,* there would be fewer to risk the consequences of indulgence in them, and no necessity for lien laws would exist. Men frequently undertake contracts with the *positive intent* of defrauding, and there are occasionally owners to be found to join in well-laid plans to secure advantages and profits through such arrangements; and this sort of robbery is *made easy and profitable,* because there is no special law covering, and by which such transactions may be punished. Cases are known in this and adjacent cities where parties have received considerable sums of money on account of contract, and for the deliberately conceived purposes of swindling their creditors, have proclaimed accidental loss of the whole sum, by "being robbed," "losing it out of my buggy," and other delusive stories. Others have secured for themselves homesteads, pianos, and other expensive luxuries and conveniences, at the expense of creditors, without being held to any accountability. These things are repeated with impunity because they furnish a method by which men can *steal* without being punished for the theft. A little strong and effective law-making in this direction would do more toward purifying the contracting atmosphere than all the lien laws that can be enacted.

The Mechanics' Fair, 1881.

The exhibition of the Mechanics' Institute Fair of San Francisco, opened on the 2d inst., with the usual preliminary exercises, and encouraging prospects of another brilliant success with its close. The usual drawback has again been experienced during the first week, that of the exhibitors' tardiness in filling and fitting up their respective stalls. It is to be regretted that this should always occur, as the fact being known, a great many persons refuse to attend the exhibition during the first week or ten days, because they know that the display will not be full, nor its arrangements completed short of that time. Consequently, the receipts for at least the first week are greatly diminished, because the "send-off" lacks commanding interest. Whereas, if the patrons of the fair knew that the exhibit would be full and interesting from the commencement, it would create an enthusiasm which would greatly enhance the practical and financial results of the fair, both to the managers and exhibitors.

LARGE DRIVING BELTS.—Messrs. T. Icke & Son, of the Heath Leather Works, West Bromwich, have just manufactured two very large machine-made driving leather belts. One belt is 469 feet long, 14½ in. wide, ¾ in. thick, and weighs about one ton. In making it up 24,000 copper rivets, weighing 2½ cwt., have been used. The length of the other belt is 180 feet, the width 15 in., and the thickness ¾ in.—*The Timber Trades Journal.*

Legal Notes and Cases.

In the case of *Ward vs. Kilpatrick,* decided by the New York Court of Appeals on May 31st, 1881, which was brought to foreclose a mechanic's lien for mirror-frames prepared to be set in the parlors and halls of eight houses—those in the halls to be arranged to serve the purposes of hat-racks and umbrella-stands—the work was done and the frames set in, but payment was refused, and this action was brought.

Finch, J., delivered the opinion, and said: "Had the articles furnished become so attached to the buildings in progress of construction as to justify a lien under the act of 1875? The language of its first section is: 'Every person performing labor upon, or furnishing materials to be used in the construction, alteration, or repair of, any building, etc., shall have lien upon the same.' Labor upon the building, materials used in its construction, are the tests of the lienor's rights. In other words, the work and the materials, both in fact and in intention, must have become part and parcel of the building itself. The inquiry approaches so nearly the doctrine of fixtures as to make the decisions in that respect authorative, and the necessary guides to our conclusion. If, as between vendor and vendee, the mirror-frames in question would have passed by a deed of the real estate, without special enumeration or description, it will follow that they formed part of the house and were elements in its construction, and so furnished a basis for the lien claimed. The general subject was much discussed in this court in *McRea vs. Bank,* 66 N. Y., 489. The results arrived at were as precise and definite as the nature of the subject would permit, and must form the basis of our judgment. The question arose between mortgagor and mortgagee, and three requisites were named as the criterion of a fixture. These were: first, actual annexation to the realty or something appurtenant thereto; second, application to the use or purpose to which that part of the realty to which it is connected is appropriated; and, third, the intention of the party making the annexation to make a permanent accession to the freehold. The mirror-frames in the present case were actually annexed to the realty; they were so annexed during the process of building, and as part of that process; they were not brought as furniture into the completed house, but themselves formed part of such completion; those in the hall filled up and occupied a gap left in the wainscoting; they were an essential part of the inner surface of the hall, and of a material and construction to correspond with and properly formed part of such inner surface; and those in the parlor fitted into a gap purposely left in the baseboard. Both those in the hall and those in the parlor were fastened to the wall with hooks and screws, and they could be removed; but their removal would leave unfinished walls, and require work upon the house to supply and repair their absence. They were fitted to the use and purpose for which the part of the building they occupied was designed; they formed part of the inner wall, and their construction and finish was made to correspond with the cabinet-work of the rooms. In each house they faced each other and formed the most prominent feature of the internal ornamentation. They were intended by the owner to be permanently attached to the buildings, and to go with them when sold, as essential parts of the construction. Three of the houses were in fact thus sold. The owner testified as to those frames, that he regarded them as 'the most attractive portion of the house'; that he stated to the agent of the maker that it was very important to have a few of the frames in immediately, 'so that a party who would be desirous of purchasing the house could see those mirrors and hat-racks'; that the agreement with Mr. Evers was, that he should go on immediately and put in the frames in two or three of the houses, 'so as to be able to show what the houses would be, without delay'; that the kind of work he called this particular work that was to be done, was 'cabinet carpentering'; that on one or more occasions he complained of the work not having been done, adding 'and that I could not get my houses ready for market'; and that he was very strenuous about having the frames put up, 'because he wished to show the houses to some parties.' These facts indicate very plainly the purpose and intention of the owner to permanently attach the frames to the building, and make them a part of the structure. It follows that they become parcel of the realty, and as between vendor and vendee would have passed by deed. The recent case of *McKeage vs. Hanover Fire Ins. Co.,* 81 N. Y., 38, does not conflict with this conclusion. In that case the proof showed that the mirrors 'were not set into the walls'; were put up after the house had been built; were capable of being easily detached without interfering with or injuring the walls; and were as mere furniture as pictures hung in the usual way. The difference between the cases is obvious. We are of opinion, therefore, that the work done by the lienor was work upon the house, and the materials furnished were used in its construction. The objection that no lien attached cannot be sustained." * * * * *

It is the general rule that, upon the boundaries of his own land, if he does not interfere with any natural or prescriptive watercourse, the owner may erect such barriers as he may deem necessary to keep off surface-water or overflowing floods coming from or across adjacent lands; and for any consequent repulsion, turning aside, or keeping up, of these waters to the injury of other lands, he will not be responsible; but such waters as fall in rain or snow on his land, or come thereon by surface drainage from or over contiguous lands, he must keep within his boundaries, or permit them to flow off without artificial interference, unless within the limits of his land he can turn them into a natural watercourse. *Cairo & Vincennes Railroad Co. vs. Stevens,* Supreme Court of Indiana, May 4th, 1881. —*From the A. A. & B. News.*

The Lien Law Question.

We are in almost constant receipt of communications in reference to the Mechanics' Lien Law of this and other States, submitting numerous propositions and making inquiries as to the validity, application, force, and effect of the California statute.

The readers of this journal were furnished a full digest of the law as it now stands in the July issue of last year. Opinions differ widely upon the lien law question, and the greater number of dealers in building materials, architects, and mechanics, have each formed opinions and reached conclusions from their several standpoints of theorizing and logic, which cannot be changed by any system of reasoning that might be urged by others. So that, until a substantial decision by the Supreme Court is received, all must rest content to feed upon the sweetness of their respective views.

That there should be a *fair, just, and equitable* lien law is a generally admitted necessity; but the differences of opinion as to what constitutes such features of equity, etc., are so disputed and diversified that it is questionable whether a law can be framed which will receive universal assent and approval. Many of the legal equities established by statute meet with no special general opposition, because their action, enforcement, and benefits bear alike in turn upon all litigants; and those who wage legal combat under them receive the advantages provided by the statute governing the issues, without any presumption or fact that the law is framed to favor one side more than the other. But in the case of lien laws, they all seek to protect one class of litigants, without furnishing any protection to the other. They provide how the mechanic, material-man, and others, may establish and secure their respective interests, but make no provision for the protection of the owner. These are left for his personal management, *and if he fails to comprehend and devise protections for himself,* he must suffer the consequences. Consequently, all plaintiffs in lien-law suits, whose claims are in themselves valid, are *specially aided* by the statutes in the recovery of the claims set up; and defendants must abide the result, although they may have paid *full and fair value* for the purposes involved in the suit. This fact, however, furnishes no defense nor relief under the law, which provides that "parties of the first part" to all contracts shall be held responsible for all indebtedness created in the execution thereof, and pay all amounts remaining unpaid through the defaults and dishonesties of others, over whose acts they have had and could not hold or exercise any control. Hence, while lien laws generally provide absolute protection to one class of litigants, the other is left powerless, beyond such *personal protection* as they may institute and exercise; thus placing defendants in such cases upon the shady side of the hedge, liable to plunge into any pit that may have been dug by others, while plaintiffs pursue their course upon the bright side, where the sunbeams of "special law" makes their pathway clear.

In the discussion of lien laws, and all questions and issues arising in connection with them, we shall strive to present the equities involved, rather than the special interests of any class; and we hope that those who entertain different views upon the subject from those expressed in the columns of this journal, will exercise a spirit of generous fairness, and a willingness to admit the value of arguments opposed to their own for what they are worth. Lien laws have for all time been perplexing issues, and the wisest of legislative bodies have found them difficult questions to handle and shape, with uniform justice to all parties, for the reasons, that, to make the protections proposed complete, there must, to some extent at least, be hardships imposed upon the other side. And we here again repeat, that *this journal favors, and will always favor, a fair, equitable, and just lien law,* which provides safety to the interests of all parties concerned. We believe that such a law can be framed; and when we occupy a seat in the legislative halls of California—something that will never happen—among our first efforts will be that of proposing a lien law which will render losses by mechanics and material-men impossible, and at the same time deal fairly with owners.

Remarkable Tree Growths.

The fir-growths of Puget Sound form one of the wonders of the American world. They average 200 feet in hight, and some specimens have been cut that measure 320 feet in length and thirteen feet in diameter at the base, with a straight and well proportioned log length of ninety feet to the first limb. The cedar trees are in like proportion, and are most valuable for wooden wares of all kinds, while the firs are the best for spar and ship timber yet found in any country. There are few nations that do not use them in ship-building. One-fourth the wealth of San Francisco was culled from the shores of Puget Sound, while the government slept, and to-day all the principal steam mill owners who saw and prepare for maket from 100,000 to 200,000 feet a day to each mill—and there are thirty or more mills—are residents of San Francisco, where they invest their profits, to the great injury of residents of the Sound. There is, apparently, no exhaustion of the timber, and a century will probably elapse before Puget Sound forests will be cleared of their immense resources of varied tree growths. —*Leffel's Mechanical News.*

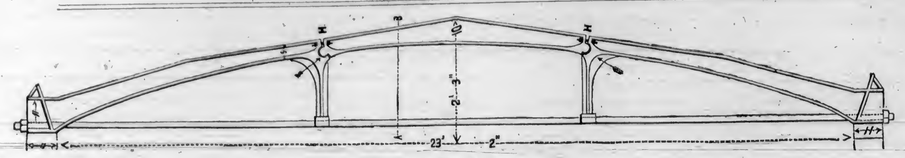


Fig. A.

A New Principle in Cast-Iron Girders.

We give space to the following from the pen of Mr. P. H. Jackson, who enjoys an enviable reputation in reference to his practical, expert, and scientific attainments in all "iron construction" matters. His theories in connection with iron girders are well sustained, and we believe correct. Of course any desired strength may be attained in any class of girders, by the use of a *sufficient quantity* of metal properly employed. But the employment of materials in *excessive quantities*, beyond actual necessities, is simply a waste of money and materials. Consequently all devices which propose equal or greater strength, by the use of a lesser quantity of the more costly materials, deserve considerations commensurate with their importance. [Ed.

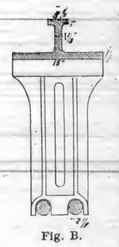


Fig. B.

Fig. A is an elevation of a girder experimented on. Length, 25 feet; distance between supports, 23 feet, 2 inches; hight from bottom of tie to under side of arch, 2 feet, 3 inches. The cross section of arch (see Fig. B) was 16 inches wide, by $1\frac{1}{8}$ inches thick at bottom, and the greatest hight 10 inches. Two of $2\frac{1}{8}$ inches diameter wrought-iron tie-rods sustained the tensile strain. Fig. C shows the knuckle-joint, the round cast on the center piece, and the socket cast on end pieces, with the strut cast on same pieces; this latter resting on the bottom on the tie-rods. Fig. D shows end of girder.

At the top of the arch will be seen a space of $1\frac{1}{4}$ inches. Whatever may be the deflection, no part of the arch excepting the knuckle-joint touch, so that compression is only exerted on the line of the bottom flange.

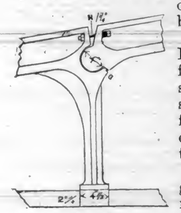


Fig. C.

The cross section of arch (see Fig. B) is of the Hodgkinson form for straight girder and mode to sustain a 16-inch brick wall; consequently, from its broad bearing for the wall, it is largely in excess on compressive resistance to the tensile capacity of the rods.

The following is the cost of this girder in San Francisco, where materials and labor are higher than in the East and in Europe:

Weight of arch casting, 3080 lbs. @ $3\frac{1}{4}$ cts.	$100 10
" " " tie-rods and nuts, 902 lbs. @ $4\frac{1}{2}$ cts.	40 59
Fitting 4 bolts and lead	5 50
Drayage and Painting	3 00
	$149 19

Had this been made to sustain 186 tons *as a safe load*, the breaking load being *three times* greater—the same casting to be used, but to have three 3-inch diameter rods—it would have cost:

3080 lbs. casting as before	$100 10
3 3-inch rods, 1848 lbs. @ $4\frac{3}{4}$ cts.	87 78
Other expenses	9 50
	$197 38
Difference	$48 19

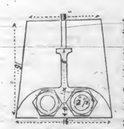
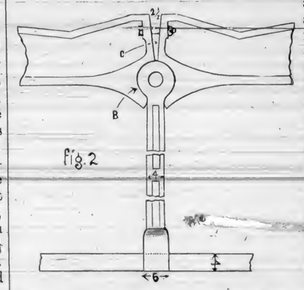
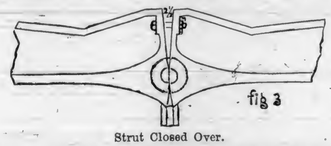


Fig. D.

It was loaded with 117 tons and 1741 pounds of railroad iron over the length between the supports; under this weight it deflected at the joints a quarter of an inch below the true arc. The foundation on which the girder rested settled seven inches, so that loading had to be stopped at the above weight. I have no doubt it would have carried 225 tons, or until the rods broke. At each of the abutting ends a lamina of lead was used to fill in between the castings which were not nicely fitted, as the strength at this place was so much in excess of requirements. This was to make up for the irregular surfaces. The draft of the pattern-making is fuller in the middle on each piece. To make up for the closing-up part of the lead when the compressive force was exerted, as well as to straighten the tie-rods when loaded, the arch was cambered three-quarters of an inch above the true arc. The same rule applies to each one of these three sections as that of a continuous arch in one piece of its length—that is, they are subject to a bending moment and a thrust force—and both compression and tension are brought into play, as that of a straight girder; but less tension than compression, being of arch form, as mentioned in a previous part of this article. But it must be borne in mind that the compressive force exerted on each of these three short arches, or sections of the long arch, equivalent to three small girders, each 7 feet, 9 inches, is the *compressive force of the whole length, 23 feet, 3 inches, while the compressive and tensile force transversely exerted is only due to the load on a length of 7 feet, 9 inches.* Therefore the compressive force to resist the tie exerted on a single section

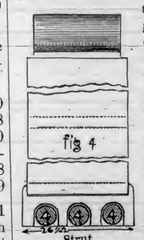




Strut Closed Over.

of 18 feet, 9 inches, consisting of 8 bays, making the entire length 150 feet, is eight times what it would be if the girder was only 18 feet, 9 inches. So, by a proper number of bays suitable to the length, this matter may be so regulated as may best suit any desired end.

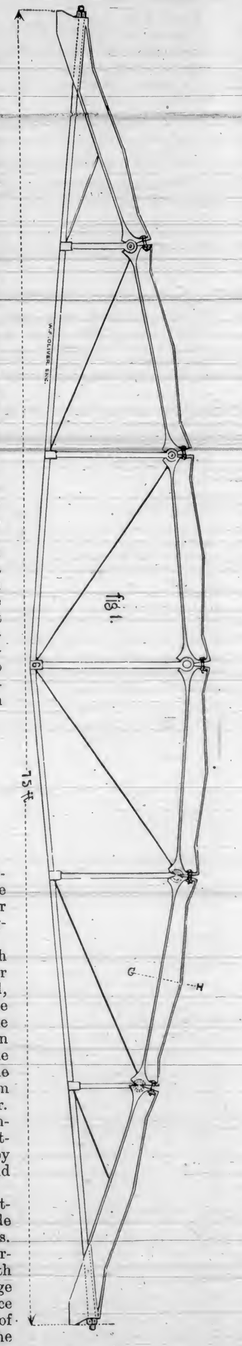
Figs. 1, 2, 3, and 4 are for a railroad bridge, which may be made 500 feet in length, and of a suitable number of bays. It will be seen that the top of strut is round, and the ends of arch are socketed to meet the round of the strut. Provision is made to prevent the girder raising, by being loaded only on one end, with a tendency to raise at the other—as that of a railroad train on the one end. This is effected by the bottom edges of the casting pressing together. It will be seen that the ends of arch inclose the strut. Provision against lateral deflection is made for long spans by widening the ends where they abut and inclose the struts.



Strut.

To sustain the bridge floor, wrought-iron rods or suspenders may run inside or on outside of the cast-iron struts. This construction weighed in all its bearings will be found to be much cheaper for equal strength than any now in use. Girders of long spans for a bridge can be made, as it were, in a day, and taken to its place of destination and readily put together. By this mode of construction, I have found a means to apply for the world's use the heretofore universally condemned cast-iron, when used for long spans and subject to cross strain, as well as overcoming the inherent delinquencies caused by the unequal distribution of the metal, causing weakness, if not positive rupture unobservable, made to exist by contraction of the metal in cooling. The 25-foot girder is in front of premises, 231 First street, where it may be examined.

I would respectfully invite discussion of the engineering faculty respecting the merits herein set forth.



The Presidential Cold-Air Machine.

The apparatus which proved most satisfactory in cooling the chamber of the wounded President was furnished by a Mr. Jennings, of Baltimore. It was devised for use in a new process of refining lard. According to the inventor's description, the apparatus consists of a cast iron chamber, about ten feet long and three wide and three high, filled with vertical iron frames covered with cotton terry or Turkish toweling. These screens are placed half an inch apart, and represent some three thousand feet of cooling surface. Immediately over these vertical screens is placed a coil of inch iron pipe, the lower side of which is filled with fine perforations. Into a galvanized iron tank, holding 100 gallons of water, is put finely granulated or shaved ice (and salt when a low temperature is required). This water is sprayed upon the sheets in the lower tank constantly. In each end of the iron chamber are openings thirteen inches square. To the outer end of this chamber is a pipe connecting with an outdoor air conductor. To the opposite end is connected a similar pipe leading into an ice chamber at its top, and from the bottom of the same a pipe leads to a small exhaust fan, and from the fan the now cold and dry air is forced direct into the President's room through a flue some twenty feet in length. Air at 99 degrees temperature to-day is supplied at the rate of 22,000 cubic feet per hour at the register in the President's room at 54 degrees, and with the windows and doors open the temperature at the President's bed (twenty-five feet away) is maintained steadily at 75 degrees day and night. When the cold-air machine was introduced, it was intended to keep the windows and doors closed, and under these conditions the machine would create and maintain a temperature of 60 degrees in the hottest weather, without using the auxiliary ice air chamber now used, which was the suggestion of Professor Newcomb and Major Powell, to meet the requirements of cooling the room with the doors and windows open. The closing of them gave the room an air of gloom. An extra ice chamber, fan, and engine has been put up in a room opening into the hall near the first apparatus, to be used in case of accident, and to cool the corridors of rooms adjoining the President's. —*Scientific American.*

A trial took place recently in Rome which should be followed by many similar ones in other countries. A contractor, Cordone, was engaged in building a house in the Via Volturno, and had engaged two professional scaffold-builders, Cardinali and Diamanti, to construct the staging. While the work was going on, six workmen had occasion to carry a large stone, slung from a pole, along the scaffold, when one of them allowed the pole to slip from his shoulder, letting the stone fall upon the planks, which gave way and brought the whole structure down, killing several men. All the parties were arrested and brought before the court. Cordone testified in his own behalf that he had been in business forty-seven years, and had during that time built more than sixty large houses, without ever before having had to lament the least accident; and many witnesses confirmed his assertions. The foreman of the masons said that the scaffold was solid and strong; and the scaffold-builders themselves acknowledged that Cordone furnished them with all the timber they required. It appeared, however, that they had knowingly allowed some decayed pieces to enter into the construction, and they were therefore both condemned to six months' imprisonment and a fine, while Cordone and the mason were exonerated. Although examples of builders being held to answer in damages for injuries to their workmen through insufficient safeguards are not rare here, it must be acknowledged that rickety stagings, ill-secured ladders, and unguarded hatchways are too much matters of course among us; and contractors who can boast of having built sixty large structures of masonry without an accident are rare indeed.—*American Architect.*

The well-known mechanical engineer, Jas. W. See, of Hamilton, O., as Secretary of the Board of Trade of that city, thus outlines its manufacturing advantages:

The tendency of the modern factory is to locate outside, but within easy reach of large cities. But few concerns can afford all desired room if it must be paid for at city prices. Ground rent, water rates, taxation, and insurance, all at city prices, are burdens indeed to the city manufacturer competing with his neighbor in the suburbs. These burdens have led to the present practice of doing the business in the city and the manufacturing in the suburbs.

In this spirit Philadelphia factories are locating in Chester, Wilmington, etc.; New York uses Jersey towns; Chicago uses Grand Crossing, Pullman, etc.; while Pittsburg work is largely done in Alleghany, Beaver Falls, Sharpsburg, McKeesport, etc.

Our city seems specially fitted as the place for the Cincinnati factory. Distance twenty-five miles by railroad or canal; trains at all hours; good water-power; all expenses for premises low; workmen clean-minded and not given to the vices of cities; workmen owning their homes, and thus becoming a permanent reliance; communication in town and with city by telephone; supplies ordered in the evening are on hand next morning.

Many of the best concerns in the country are now located here on premises which few could afford to occupy in a metropolitan city. Our city's product has a most excellent reputation abroad, and many of its manufactures lead their respective lines in the country.—*American Machinist.*

Sanitary Uses of Trees.

It is generally known that trees and shrubbery take the carbonic acid thrown out in the breath of men and animals, separate it into its component parts—cabon and oxygen—give back the latter to be used over again, and work up the former into wood and fruit. It is also coming to be generally understood that forest trees do important service in prompting rainfalls, and in helping to retain the surface water for springs, streams, and general use. It is also known that certain species planted in malarial localites help to render the latter healthy by somehow using up the deadly miasma. It would now appear that trees growing near drains carry off the sewerage water. A gentleman whose cess-drain was constructed just like his neighbors', and in the same kind of soil, has found it unnecessary to clean it out, while the others had to be cleaned out frequently. An examination showed that three large trees, whose roots had penetrated into the vicinity of his second or waste cess pool, were clearly the channels through which the waste all escaped. Whether it was changed into plant-food, as is likely, or was exhaled through the leaves, in either case it was disposed of with equal safety.—*The Leffel Mechanical News.*

Chinese Mechanical Methods.

The anvil of the Chinese smith is not flat like the anvils of other countries, but convex on its face, or working surface; and the bellows of the Chinese forge, instead of moving vertically, has a horizontal stroke. The paper of the Chinese is thin and weak; it is printed on one side only, but doubled to present a folded edge at the rim of the leaf and a printed surface on either side. The chain pump of China has a square barrel—that of other lands cylindric. Brass is made elsewhere by melting together copper and zinc in a crucible; in China, by suspending thin sheets of copper, heated almost to melting, in the vapor of molton zinc.

The German silver of Europe is made by combining the materials in their metallic condition; its Chinese equivalent by mingling the ores of the metals and reducing them together to produce the alloy. Spangles are made, not by cutting or stamping from sheet metal, but flattening wire first bent into annular form. Pewter vessels are not cast, but are shaped by hammering upon a block. The primative mill used in many countries—in Normandy for crushing apples for cider, in South America for pulverizing ores, in our own country for powdering the scoria of assaying pots—and composed of a wheel traveling in a groove or channel, has, among western nations, its wheels running continuously in a circular track, around a vertical axle; in China, its wheel working to and fro in a semi-circular track, and around a horizontal center of movement.

Chinese lanterns are not made of horn, like those of the Romans, or of perforated metal, as long since in our own country, or of glass, as is now universal, but are of varnished paper stretched on bamboo frames, sometimes of little cost for the multitude, sometimes of great intrinsic worth, and blazoned with titles, for the mandarins. The domestic industry of other lands has obtained the healthful acid of vinegar from the acetic fermentation of the sweet juices of fruits; the Chinese, by placing in water the sea polypus found along the coasts.

Fish culture, now a matter of solicitude in our own and other countries, is old in China, but the Chinese fish culturist puts the spawn in an egg shell and places it under a setting fowl, and after due delay breaks the shell into water warmed by the sun. These are not trifles. They show that in the earlicst period of her existence, China drew nothing from other lands. In what she required she originated all, she imitated nothing.—*Leffel's Mechanical News.*

A Suggestion to our Farmers.—A great many of our exchanges of late have very well written editorials in regard to the scarcity of black-walnut timber. We would like to see some of our farmers experiment in regard to raising walnut. It will grow from the seed, and on ground that is unfit for ordinary cultivation. Many a farmer might make his land profitable by setting it out in walnut trees, which will never eat their heads off, and will yearly increase in value.

Several Chicago manufacturing establishments have been compelled during the past two months to advertise for skilled labor. Common labor is ordinarily plenty, but there can scarcely be said to be an over-abundance of it, while skilled mechanical labor has been positively in demand. Draughtsmen have also had their hands more than full.

The demand for bound volumes of this journal for 1880 has been such that we have had 500 additional copies bound, which we will send to any address at the reduced price of $2.00 per volume.

Mechanical Parasites.

All mechanical operations are afflicted by what may be termed mechanical parasites, which assume various shapes, but are more or less hurtful. The world is by no class of its inhabitants more honored and benefited than by its *truly competent* mechanics. It is the skillful sons of toil who produce beauties of endless shapes and forms out of the crude matter and material derived from the world's great laboratory. It is beyond the possibility of computation to estimate the number or value of things produced by the hand of man from the metallic deposits which for ages have remained within the secret chambers of earth, and figures and language fail in the recital and enumeration of what has been produced from the growth of the soil; while mechanical art has utilized almost every substance to some practical and useful purpose. But that which has been *well done*, has been the work of men worthy the title of "skillful workmen"; those who have cultivated and caused the great tree of mechanics, both practical and scientific, to grow until their towering tops have reached up into ethereal space, measuring planets, spheres, and the celestial bodies, and bringing the heavens within scope of comparative converse with earth through means and appliances conceived and perfected by the mechanical and scientific skill of *master workmen*.

In contrast with these are the parasitical hordes, whom to denominate mechanics in any fair or right sense would be a perversion of terms, a libel upon the mechanical art. Yet the labor markets of the world are well supplied with this class of material, and every avenue of mechanical operations thronged with such men, ranging from fair and tolerable workmen down to the "unmitigated botch," a class to which the term *mechanical scavengers* might consistently be applied.

While gems in mechanism may sometimes be found, the far greater proportion of labor products portray the finger-prints of novices, or the matured, unskillful spoilers of good materials. In house-building upon the Pacific coast, this lesser mechanical element is largely represented, and they generally make success of their *attempts*, because the generality of owners and employers fail to distinguish or appreciate the difference between *skillful workmanship* and *slop-shop substitutions*. Consequently, the better classes are demoralized and degraded, by being brought into competition with this lesser element, whose love of money-making overrides and supplants all considerations of nicety of workmanship—a sentiment which, reversed, fitly applies to all, except a few owners—those whose love of saving and economizing overrides and supplants all considerations of *good work* at a *fair* and *right consideration*. While this condition of things bears heavily upon the skillful classes, and stimulates the opposite in their violations of mechanical principles, rules, and practices, it also weighs heavily upon qualified architects, who from the causes mentioned, have imposed upon them onerous, severe, and multiplied duties. The ordinary cares and obligations involved in planning and superintending the execution of buildings and work is sufficiently arduous, in view of the pay received, at full rates; but when to this is added the numerous vexations and unpleasant things which grow out of this demoralized sentiment in reference to good work, and the letting of contracts to inferior men, the situation often becomes almost unendurable. It is within the experience of many of the prominent architects in San Francisco, that they have used the hatchet and chisel freely in tearing down, or personally compelled the removal of miserably defective attempts at workmanship. So that, between the parasites and unappreciative owners on the one hand, and skillful mechanics and competent architects on the other, matters mechanical are considerably mixed; with the advantage more in favor of the former, with their respective purposes of money-saving on the one hand, and money-making on the other, with *skillful mechanism* as the sacrifice upon the altar of avarice and greed.

Repainting the Palace Hotel.

During the past two or three months, workmen have been engaged painting this "*largest hotel in the world.*" It needed painting badly, and should be touched up with the paint brush yearly to help conceal or disguise its architectural deformities, which is a subject of daily comment and remark. "It looks like a great big box," has been repeated ten thousand times; and when to this is added a dirty, dingy appearance for want of a coat of paint, or a good washing down with water, it presents a condition of extreme inelegance. But the *modus operandi* by which its present painting is being done is of questionable propriety, being a violation of all "*usual rules of trade.*" Owners may, if they choose, do a great many things within the statute of personal privileges, which are violations of business regularities and departures from correct business customs, which, if justifiable in any one case must be equally so in all, and with this consummated and made the rule, would lead to the upsetting of all mechanical operations.

As we are informed, the owner furnishes all of the materials at his own cost: right. But whether the employment of a number of workmen, some if not all of whom are non-residents of San Francisco, at monthly wages and board, is a consistent and proper business procedure on the part of a wealthy owner is a question not affirmatively answered by the working classes generally. It certainly has the appearance of whittling things to a very fine point, a course pardonable with men of small means and limited recourses; but not commendable in those who have accumulated large fortunes and wealth. For any and every act which has a tendency to disrupt and break down the *regular, proper rules and practices of trade*, works an injury to the community in which such things occur. General prosperity and enrichment is the outgrowth of business successes among those who have made the mechanical, manufacturing, and other arts a life study; and that which retards or discourages them, opens the door of poverty to the masses, and reduces honest labor to a condition of menial servitude. The mechanical and other arts have reached their present grandeur by and through the genius, skill, and devotion of the earnest, hard-working sons of toil, and the crippling, or undervaluing of these is both ungenerous, unkind, and hurtful, whether it be the master painter in his manipulations of white-lead and paint stock generally, the artist who produces sublime beauties upon canvass, or those who from crude metals and materials, work out and perfect tens of thousands of useful devices.

The New Industrial Exposition.

The New England Manufacturers' and Mechanics' Institute have nearly completed their large exhibition building on Huntington Ave., Boston, and the first grand exhibition will open August 18th. Various kinds of manufacturing processes will be fully exemplified on the premises, including boot and shoe making (with over a hundred machines), paper making, glass making, carpet weaving, cloth weaving, and lead-pipe making.

Machinery in motion will be exhibited by a large number of the leading machinery manufacturers of New England. The machinery department includes 125,000 square feet of floor surface. The whole building is 540 by 384 feet, covering five acres of land, and has an exhibition space of over eight acres.—*Amer. Machinist.*

Communicated.

The following is from the pen of one who has had large experience in connection with architecture and practical building in San Francisco. If the language employed is not as concise nor as well chosen as it might be, the intent of the writer is sufficiently explicit to convey his views and intended *meanings*. Ed.

A dwelling can be social and pleasant as well as an individual. The rooms can be so placed relative to each other as to be convenient and easy to reach. Bedrooms can be so placed that nearly all of them will receive the first rays of the rising sun Sitting-rooms can be located so as to be most agreeable at the time they are most in use, and on the side of the house least exposed to cold winds or storms. The library can be in a retired position without being isolated. The kitchen and dining-rooms can be on the cool side of the house, well lighted and well ventilated. Few people imagine how far a well-planned house goes towards making a happy home. Many persons give themselves credit for being amiable and social in their dispositions, when in fact it is principally owing to their pleasant and agreeable surroundings; most likely due to the skill of their architect. Place the same persons in an illy-contrived dwelling, and they will soon begin to fret and complain; they cannot tell what is the matter; they only know that their home is not agreeable; complaints are made of the disorderly condition of the furniture and things in general; the husband, perhaps, accusing the wife of carelessness in not keeping the house in better order; everything seems in the way; the servants are dissatisfied and constantly changing; all hands are querulous and unhappy. Why? Just because some unskillful architect, perhaps more unskillful builder, has undertaken something he knew but little about.

Some of our builders, and a few of our architects, think that if the outside of the house is profusely ornamented, they have accomplished their purpose, not being aware, that no amount of decoration will compensate for a bad plan. Wives, especially, should see that their homes are planned so as to suit the requirements of the family; so that there will be no striking changes in their mode of life, unless it is for the better. They should look to convenience rather than display, remembering that their house is to be built for use, not for show. They should be sure of having a good, well-digested plan, that will suit exactly, before going any further. A house can be designed and constructed in such a manner that it will be the most pleasant place in the world to the family occupying it, just as cheaply as the most disagreeable house, if a well-qualified person is employed to do it. Any architect that has studied his profession can very soon find out the habits and requirements of his client, can suggest improvements, and discourage propositions known to be undesirable. A family should avoid a badly planned house the same as they would a house infected with disease. B.

Toughened Glass.

From the results of a large number of experiments it is found that the elasticity of toughened glass is more than double that of ordinary glass, and that toughened sheets bend much more readily than ordinary sheets. Single toughened glass has a resistance 2.5 times, and demi-double toughened glass a resistance 3.1 times, that of ordinary double glass. Polished toughened sheets, of thicknesses varying from 0.006 meter to 0.013 meter, have a resistance 3.67 times as great as that of ordinary sheets of the same thickness, and the resistance of rough toughened sheets is 5.33 times that of ordinary rough sheets.—*De la Bastie.*

Faulty Competitions Among Mechanics.

The question, Why is there so much difference in men's figures? is an inquiry familiar to all architects; and owners may well express it, and wonder at the fact. There is scarcely a job of work let by competition in which the figures submitted as the sum of estimate do not create surprise on the part of all concerned, varying as they do from five to one hundred per cent; and in some cases, two and three hundred per cent.

This state of things certainly illustrates a great wildness and lack of good judgment and intelligence on the part of some who do the figuring, and greatly tends to lessen confidence in the integrity of such competitions; for owners, discovering unreasonable discrepancies among bidders, running up somewhere into the differences stated, naturally conclude that there must be something wrong; and, being unable to reconcile the great inconsistencies which appear, very naturally prejudge the motives of the "high man," as evidence of dishonest intent; and if the work is let to the "lowest bidder," and his bid is materially less than all others, anxiety and fear is entertained that the "low man" will compensate himself for his low figuring, by omissions and neglects in the work proposed. Consequently a feeling of distrust in such cases permeates the entire operation; and if unpleasantness in some form does not manifest itself, the case may be considered an unusual one.

There is *no good* or *logical* reasons why this should be so, and the solution of the problem is found in many common causes: *First*, In this section of the world a very large proportion of those who estimate upon work offered in competition, are not *practical mechanics*, and have gained all the knowledge possessed by the "picking-up" process—a system of education by which no man living can attain a correct understanding of the thing "picked up." And those who work by the "picked-up" rule, never can be relied upon for accuracy in any particular governed by the rule. If they happen to strike the right figure, it is all the work of chance, and the only purpose that their random attempts serves is to distract and confuse right understandings of correct values.

Again: many who estimate upon work, unfortunately for themselves and the trade generally, enjoy but limitedly the advantages of a good education; and as a consequence, errors in figures are of common occurrence. Such men may be good at carrying timber, etc.; but when required to "carry" figures in summing up columns, their disadvantages assume material proportions. We were once called in in an arbitration matter, where one of the contracting parties signed the contract with "his X mark"; still he was a "boss builder," wears good clothing, and assumes to be a person of considerable importance.

Others fall into error through lack of arrangement and system, and a failure to follow and conform their method of figuring to the arrangement of the basis of calculation, i. e. the specifications. Those who prepare specifications follow the natural flow of thought which comes to them during such preparation; and whether wisely or unwisely defined, it is the safer way for bidders to follow the channel in its natural course, rather than to attempt to measure its length by "going around the hill." Many of the errors which sometimes results disastrously to men in figuring come from this cause; jumping from one to another portion of the specifications, and not adhering to the line of their arrangement, almost invariably results in the oversight of something intended and specified, by which the party figuring becomes the sufferer. No two men ever persue the same line and arrangement of thought upon any subject; and a second party desiring and seeking to arrive at conclusions founded in the thinking of a first party, the more nearly he confines himself to the method of thinking established by the first, the more certain will he be in the final result. We have known men to leave out the entire stain work, chimneys, sewers, and other items respectively, because they were for the time being passed for the consideration of other things, and finally forgotten altogether; while if the value of each had been determined in the order in which they were placed in the written guide, the omissions, the chances of oversight would have been less. Honest meaning men, fairly and entirely competent to estimate values, may and do often make mistakes, and involve themselves in losses and difficulties. But such men generally accept the responsibilities and consequences of their errors, and do well and faithfully in the face of understood losses; and by nothing more than under such circumstances is the integrity of men developed. And it is a source of pleasure to us personally to be able to call to mind quite a number who have passed the ordeal of losses through errors in estimating *with honor to themselves*. Yet such sacrifices of personal interests are but seldom appreciated; and it is more to the credit of any owner of property, who, having secured the benefits and profits of a fair man's blunder in estimating, by which the owner saves largely in the cost of the work contracted for, to "throw off" on the man who has suffered loss by existing or past contracts, when contemplating additional improvements or work. Yet it is frequently done, and the sufferer scarcely afforded even chances with others, upon the unkind presumption that in the second operation the loser would seek to make good in part or as a whole the losses already sustained.

But the class of bidders who do most to bring discredit upon mechanical operations are those who are positively dishonest in intent, purpose, and practice. There are such men, with dishonest motives and designs as the mainspring of all their actions. A party once remarked to us, in speaking of a third party, that the party referred to was "such an infernal liar that he would rather *lie on credit than tell the truth for cash.*" So with some men who disgrace the name of mechanic: they prefer to practice wrongs on credit rather than act uprightly for honestly earned coin; and such men frequently meet with encouragement through their skillful management of matters, and the delusiveness of arguments and pretentions cunningly handled and urged by them. Many of the worst scoundrels that have ever lived have been masters of the art persuasive—alluring and deceiving by wordy devices and argument. And unfortunately, some at least of these slimy specimens of humanity assume the robes and claim the title of "*Honest Mechanic,*" only to defile and dishoner them.

CATALPA WOOD.—It is believed that the railroad tie of the future will be cut from the catalpa tree. The Fort Scott, Texas, and Gulf Railroad has planted three hundred acres of young trees, and the Iron Mountain Railroad one hundred acres, near Charleston, Mo. On the track-bed of the latter company ties of this wood have lain in the muddy silt of the Mississippi for twelve years, and are still in a good state of preservation. They have outlasted two sets of white oak ties, and bid fair to survive the third. Fence-posts in Indiana and Illinois are now sound, after having been in service for forty, fifty, and even seventy-five years. In the muddy regions about Cairo, where it is grown extensively, it is used as "corner-stones" for the most substantial buildings. It is of an elastic nature, but not so soft and light as cotton-wood. Dr. John A. Warder, president of the American Forestry Association, claims for the catalpa a durability and power of resistance to the influences of the elements possessed by no other wood. It is found in the Mississippi Valley, and on the shores of the tributaries of the great river. It bears a large, white, highly-perfumed flower, and grows quite rapidly.—*Boston Herald.*

Sewer-Gas Scare in the Eastern Cities.

A number of our exchanges have lately contained recitals of cases where owners of buildings have caused the removal of all wash-basins and fixtures communicating with street sewers by means of waste pipes. In such cases the wash-stand, wash-basin, and pitcher furnishes the substitutes.

If this is *in fact* a necessity, it demonstrates that, by proper manipulations and effort, dangerous improvements may be rendered popular; for it is also a fact, that of late years the introduction of stationary basins have become almost universal in all classes of houses. And if they are a source of danger to human health, the sooner they are dispensed with the better. But we are not convinced that they are the fearfully-to-be-dreaded thing indicated. The tearing-out movement illustrates the spiggot and bung-hole idea; and the results are exactly in harmony with the admonitions and warnings so freely and often given in the columns of this and all journals of like character; the "spiggot" feature being represented by the penuriousness of owners in preferring to engage *frauds* to execute the plumbing work of their buildings, because by so doing a few dollars could be saved; and the "bung-hole" process by the tearing-out process.

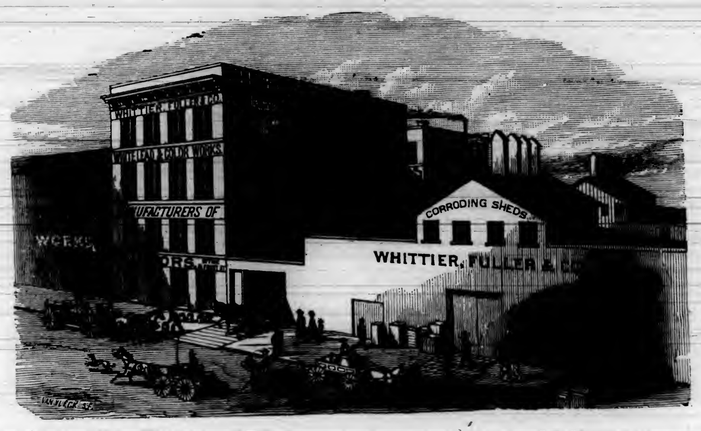
If the plumbing work of the basins torn out and discarded had been done by skillful hands—by men fully conversant with the true science of plumbing, and understanding the practical part thoroughly—the cast out basins would have remained in use.

We have repeatedly made the statement that thousands of human beings "swing out into eternity" through the poisonous vapors formed in sewers, and through *un*-plumbing work conveyed into human habitations. Still, although the statement is as true as the light of day or the silvery moonbeams of night, but little regard is paid to the fact; and when plumbing work is be done, the "cheapest plumber" controls the doing.

In the course of time, some—not all—owners will manage to understand the processes by which the evils of defective plumbing work and badly constructed houses may be avoided. But it will not be those who employ *cheap plumbers*, because they are "cheap," nor base frauds who proclaim themselves architects, while being as deficient in the science as a hypocrite is in true piety. It is no wonder that men who have "spent the best of their lives" in the pursuit of architectural studies, should often exclaim: *Whither are we drifting? and to what depths is our beautiful profession sinking?* The fact that hordes of *detestable apologies*—men without a tithe of the necessary qualifications—flourish as architects, sufficiently demonstrates the folly of many owners who place their buildings in the hands of such novices and simpletons, because they offer their *worthless services* for a nominal consideration. The saving of a few dollars becomes the mainspring of operations with many, and *cheap men* are made the rule of action throughout.

The owner who supposes that with a *cheap* architect—one who in practical experience and correct understandings of the many intricacies involved in house construction, is as limited and shallow as a duck-pond, with absolutely *no proper understanding* of the art of plumbing—he will obtain a properly built house, will find himself greatly in error. Yet such there are, and with the engagement of such men, as architects to devise, plan, specify, and direct the work, and with "cheap" plumbers, "cheap" builders, "cheap" painters, and everything else regulated by the economic rule, nothing better than an apology for a house is possible; and we heartily indorse the commonly applied sympathy—"serves him right"—expressed by competent and qualified architects and mechanics in all such cases.

PIONEER WHITE LEAD WORKS.



What is required to institute and carry to a success a manufacturing enterprise? Nature is generous with her gifts; but she forces man to the exercise of his endowments, to develop them, and give the substance a form for his appreciation and enjoyment.

The very many natural resources of this Coast are marvelous, and they impress all thinking visitors with the conviction of a great future. With but few exceptions, these wondrous gifts of Nature are at present but mere curiosities, and are spoken of and written of only as such—with prosy theories on their practical value if utilized.

To the business man, scientist, or to the practical thinker who comes amongst us, it is a matter of surprise that our people, with their wealth, do not develop these resources, and build up our coast with a working and useful population, instead of pursuing the selfish course they are now, which is that of the usurer.

Our capitalists and business men are blind to their own interests, in not interesting themselves in the establishment of manufacturing enterprises, which will secure for them a certainty of fair returns for their encouragement.

The people of this Coast cannot afford to let existing opportunities lie idle, *as a dependency on foreign sources means our impoverishment. Manufacturing guarantees the reverse, as it furnishes employment to, and retains among us, consumers,* that vital quantity in a progressive and permanent prosperity.

We have much pleasure, however, in being able to refer to some notable exceptions to the general apathy of our business and moneyed men.

Heading this article will be seen an illustration of the results of the energy and public spirit of one of the leading and pioneer mercantile firms on the Pacific Coast.

Messrs. Whittier, Fuller & Co. several years since commenced the manufacture of White Lead in this city.

They purchased ground on Fremont street, between Howard and Folsom, covering a surface of 137 6-12x275 feet, and thereon erected factories and sheds, for the purposes of the business.

Their whole works, machinery, and appliances, are on the most approved plans, and excel in detail and completeness those of any other White Lead factory in the world.

This is essentially a *home institution, from the ground through to the finished product of their mills.*

Few can realize the importance to the whole community of this enterprise.

In the first place, it encourages the development of our mines, as all the pig lead used is the production of our own coast.

It thus gives the Miners employment.

As all lead ores have to be smelted to get the metal,

It thus gives the Smelters employment.

The transportation from the producing points invokes aid of the carriers:

It thus gives Teamsters and Transportation Companies employment.

A very large quantity of oil is used in the grinding of the lead. All this oil is crushed from seed raised in this State.

It thus employs the Farmers.

All the pots used in corroding-sheds are made here.

It thus gives employment to the Potteries.

The maintaining of a factory requires the services of machinists, millwrights, and laborers:

It thus gives employment to an Army of Operatives.

And in fact, everything in and about the works is of home manufacture. *Now, what does the employment of the many branches of industry hereinbefore enumerated demonstrate?* This fact: that as they are *all consumers*, their wants *engage every business* on the Coast to supply them.

The product of the

Pioneer White Lead Works

Is not excelled by any other make in the world. It is guaranteed *strictly pure; it is white, very finely ground*, and has *superior body* and *covering properties.*

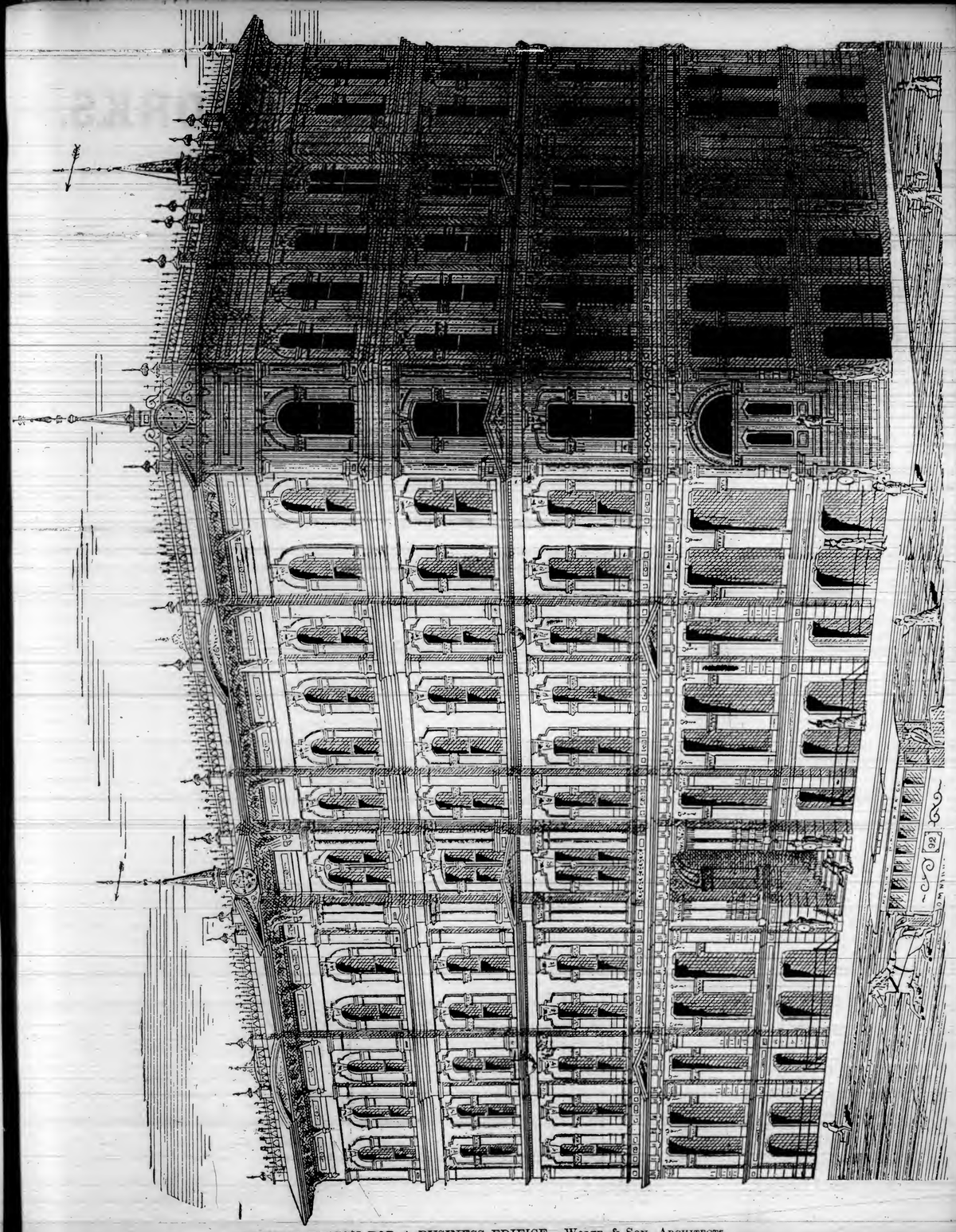
The manufacturers announce their determination to always offer it to consumers at less prices than any imported brands.

As against the imported, there would be great economy in its use, even at equal prices. All painters know that White Lead that has been packed any considerable time loses a great deal of its vitality, in the absorption by the kegs of a considerable quantity of the oil; leaving a hard mass in the keg, involving time and expense in its extraction and working up for use, and a costly addition of oil.

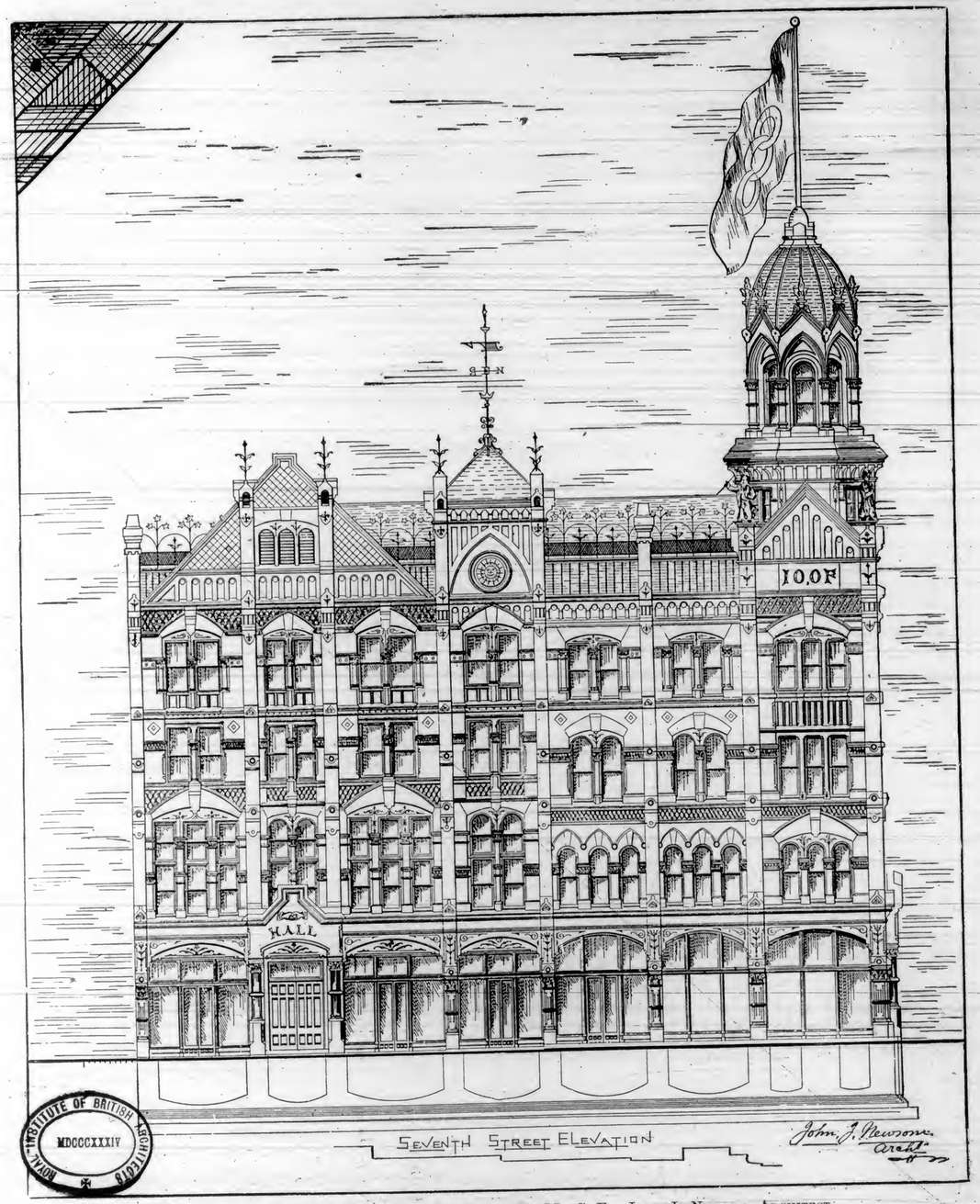
The Pioneer being all freshly packed,

all this expense is avoided.

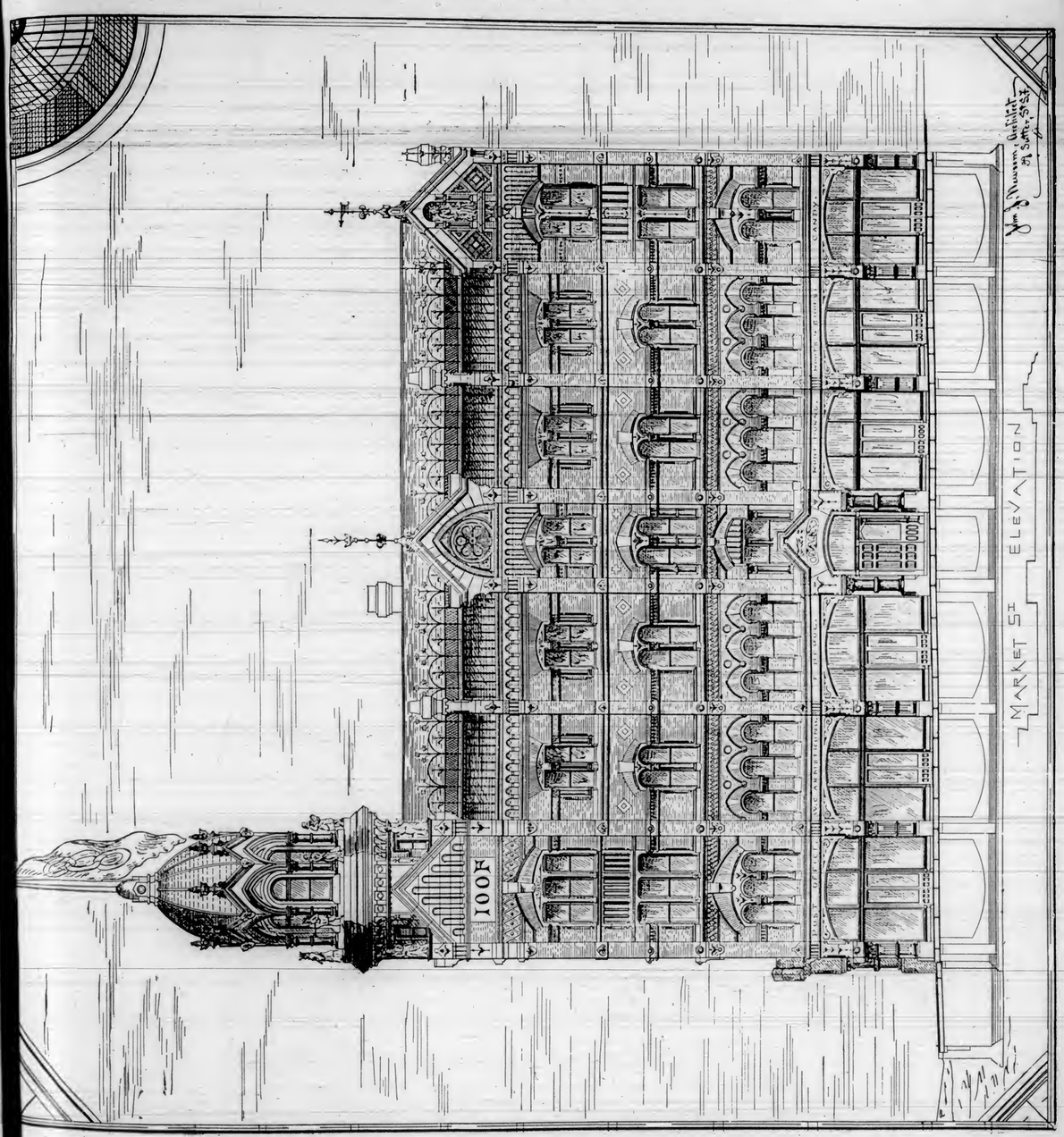
We know what the White Lead is, and we have no hesitation—in fact we take pleasure—in recommending our brother architects to write it in their specifications and to *insist on its use: first, on the score of quality; second, economy; third, the general benefit to all of us.*



ORIGINAL DESIGN FOR A BUSINESS EDIFICE.—Wolfe & Son, Architects.



COMPETITION DESIGN FOR ODD FELLOWS HALL, S. F.—JOHN J. NEWSOM, ARCHITECT.



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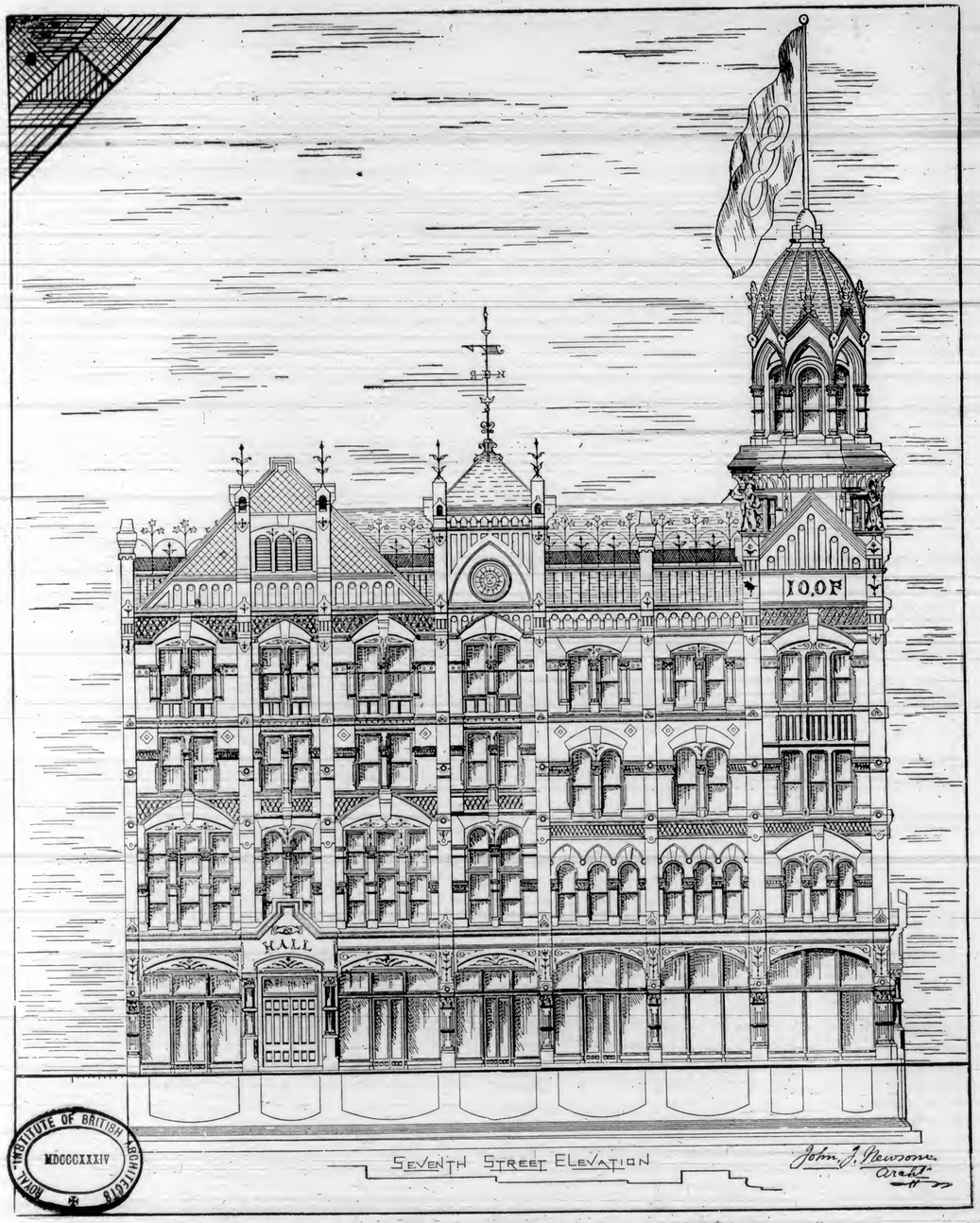

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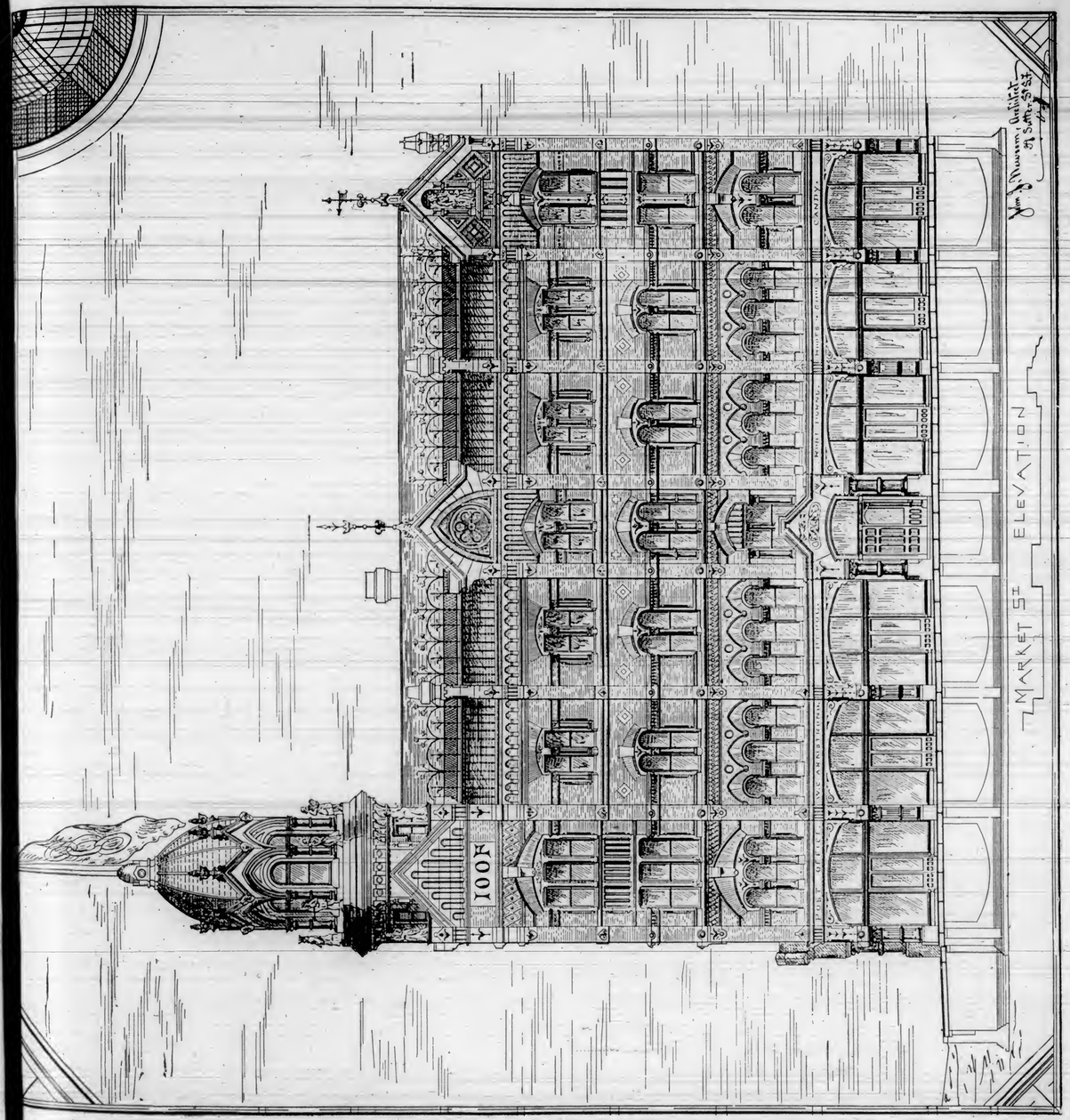

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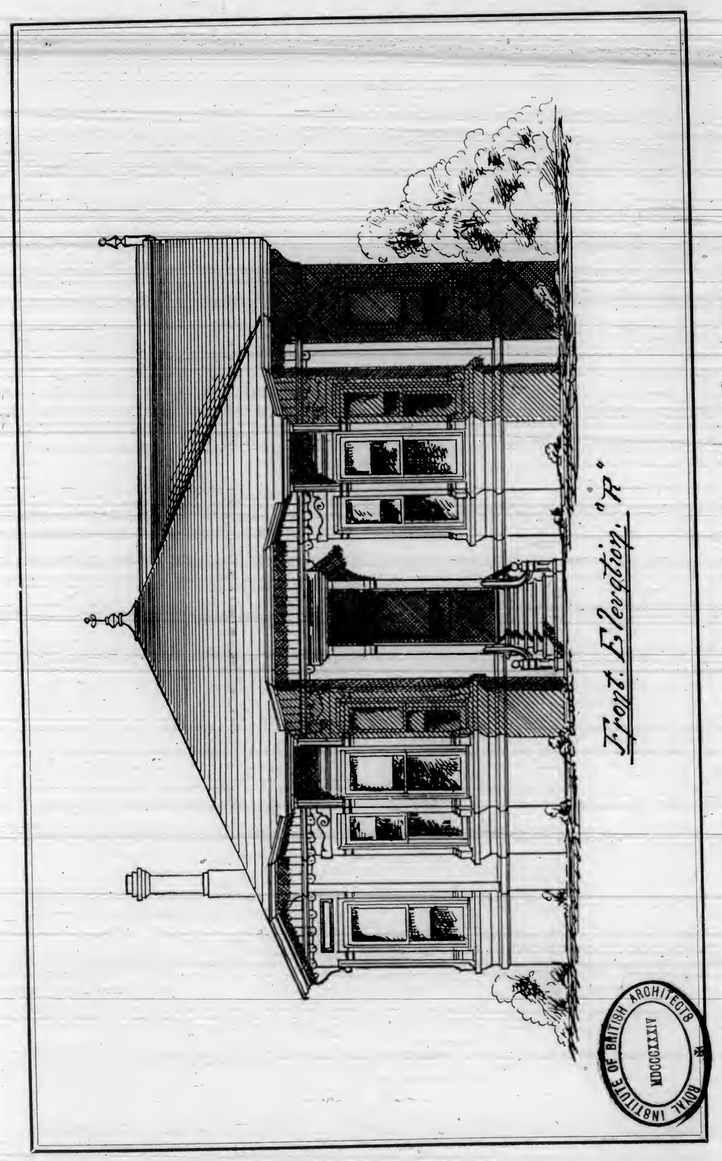

ORIGINAL DESIGN FOR ONE-STORY COTTAGE.—WOLFE & SON, ARCHITECTS.

Our Illustrations.

Cut No. 1 is an imperfect representation of a design for a very handsome business edifice. The illustration, although poorly representing the original drawings, furnishes an idea of what is intended. In this connection we again express regrets that the producing facilities at present available in this city are not equal to those employed by eastern journals, and sometimes fail to do justice to our earnest desire in furnishing meritorious illustrations. But the time is not far distant when this will be overcome, and perfect illustrations be secured. To this end we urge our friends to help extend the circulation of this journal, as the measures contemplated in this connection

WILL COST US FULLY $10,000.

Cuts 2 and 3 are elevation designs, by John J. Newson, architect for the contemplated new "Odd Fellows Hall," designed to be erected on the lot forming the south-western intersection of Market and Seventh street in this city. This being one of the "competitive designs" for the building named, it may be our pleasure to present others in future numbers. But architects in the competition must bear in mind that all drawings offered for reproduction by process for this journal must be "line drawings." Coloring, and shading other than lines, will not answer. We shall express no opinion as to merit until a decision is rendered by the committee having the competition in charge.

Cuts 4 and 5 represent a convenient, well-arranged cottage, with parlor, family room, dining-room, kitchen, two chambers, servant's room, bath-room, and excellent closet and pantry conveniences. It is designed for either city or country adoption; and if adopted for the latter, side verandas may be added; and if desired, by the omission of the bay-windows, a veranda may be continued across the front.

The Right to Lateral Support.

The right to lateral support from the adjoining soil has at last been laid down and legally defined by the highest court in the country. After a long course of litigation, the well-known case of Angus *vs.* The Commissioners of Public Works has been decided by the House of Lords in the plaintiffs' favor. Upon no other question, perhaps, has there been of late years so great a division of opinion among the most eminent lawyers. The case was tried in the summer of 1876 before Mr. Justice Lush, who ruled that there was a legal right to such lateral support; but this was reversed by Chief Justice Cockburn and Justice Mellor, while their decision was set aside by a majority of the Court of Appeal. So important was the principle involved, that the House of Lords consulted with the judges who recently gave their opinions, and in which they seemed to be almost equally divided. But now, by the judgment of the Lord Chancellor, this question is set at rest, and the easement of support has been legally recognized and explained. It must, however, be admitted that there still remain some practical points upon which doubts and difficulties are likely to arise in the future. Seeing the very complex character of the rights themselves, and the complicated state of facts upon which they may often depend, it is impossible that one case should settle everything. But this decision does a great deal in the way of solving a very puzzling problem; and, as it affects all who have to do with house-property and with building, its results and consequences need to be carefully considered.

The material facts upon which the case turned are such as may happen any day to anyone concerned in rebuilding upon an old site. Messrs. Angus & Co. are coach-builders of Newcastle-on-Tyne, and in the year 1849—which, it will be observed, was more than twenty years ago, when this action commenced—they converted an old dwelling-house into a coach factory and warehouse. In doing this, they took out the internal walls, and erected upon their own soil, but close to and adjoining the neighboring house, a large stack of brick-work, which served both as a chimney-stack and as a support to the main girders, which were fixed also into their own opposite wall, and carried the floors of the factory. This large new stack of brick-work was, of course, far heavier than the old wall it succeeded, and so required more lateral support from the adjoining soil. But it must be taken to be good law that the owner may build as he chooses upon his own land, and so that Messrs. Angus were entitled to erect this stack of brick-work, although it pressed more heavily upon the adjoining soil. Yet, as they had no grant to do this from the owner of the adjacent land, their claim to receive lateral support from his soil could only be based upon prescription, or upon uninterrupted enjoyment for over twenty years. This was the foundation of their case; for from 1849 down to about 1874 there had been no attempt at interfering with this enjoyment. At that time, however, the Commissioners purchased the adjoining premises, and forthwith proceeded to pull down the old house, intending to erect a public office on the site. For this purpose they employed Mr. Dalton as their contractor, and he, in the course of the work, excavated the ground adjoining the plaintiffs' factory, leaving a thick pillar of clay around the new stack of brick-work, and also shoring up as usual. Notwithstanding this, however, the ground beneath the plaintiffs' stack gave way, for want of lateral support, and their building fell down. At the trial a verdict was given for the plaintiffs, with £1,943 by way of damages; and that verdict has now at length been affirmed by the House of Lords.

These facts are common enough in this age of rebuilding, and are such as cannot fail to come before every architect and builder in the course of an average business. It must first be observed, that the plaintiffs sued both the owners and the contractor, and that both sought to get rid of their liability: the Commissioners alleging that Dalton alone was liable as their contractor, while he tried to throw the responsibility upon his sub-contractors. But these contentions wholly failed, as the House of Lords affirmed the ruling of the Court below, and held that both the Commissioners and their contractors were equally liable. This they did upon the well-known and recent case of Bower *vs.* Peate, (Law Rep. 1, 2, B. Div. 321) which was decided in 1876. In that case it was held that a house-owner who orders work to be done, from which, in the natural course of things, injurious consequences to his neighbor must be expected to arise, unless means are adopted by which these may be prevented, is responsible for such consequences, even if he has intrusted the work to a contractor, and even if he has used the necessary precautions in engaging such contractor. It follows from this, that, if an adjoining house ought to have been underpinned, and from an omission to do so by the contractors it was injured, the house-owner who employed the contractor is also liable for the damages. Passing lightly over this point, the Lord Chancellor said the questions arising upon the appeal were really two. First, whether a right to lateral support from adjoining land can be acquired by over twenty years' uninterrupted enjoyment for a building proved to have been newly erected at the commencement of that time. Secondly, whether, if so, there was anything in the facts of this case sufficient either to disprove the acquisition of such right, or to make it dependent upon some question of evidence which ought to have been submitted to the jury.

We do not propose to follow Lord Selborne through his learned and laborious judgment; but to get at all a clear idea of the point at issue, it must be borne in mind that the right in question is an easement, and therefore that it is not a natural right, but one purely conventional, and which must be based either upon an actual grant or upon prescription. As was said by that very able and acute judge, Mr. Justice Willis, in the leading case of Bonomi *vs.* Backhouse, (Ellis Bl. and Ellis, 655) "The right to support of land and the right to support of buildings stand upon different footings as to the mode of acquiring them; the former being *prima facie* a right of property, analogous to the flow of a natural river or of air, while the latter must be founded upon prescription or grant, express or implied—but the character of the rights when acquired is in each case the same." Thus, then, before an owner can acquire a right to lateral support for his building from the soil of an adjoining owner, something must have been done or happened. If that adjoining owner has given his neighbor leave to build as high as he chooses, and of what weight he likes, then the right to lateral support has been granted, and there is an end of the matter. But where nothing is said or done by either party, the question arises, when and how does the claim made by the owner building or rebuilding to a lateral support from the soil of the adjoining owner ripen into a right? The answer to this question is now given by the House of Lords, and is, putting it shortly, "after over twenty years' uninterrupted possession." As soon as this lateral support from the adjoining soil has been enjoyed for more than twenty years without interruption, then the land adjacent becomes affected by the lateral weight as an easement or servitude; and the adjoining owner is placed legally in the same position as if he had from the first granted the right of support to his neighbor's buildings. When, therefore, twenty years had passed since Messrs. Angus altered their old dwelling-house into a new factory, they had, by virtue of this period of enjoyment, acquired the same right to lateral support from the adjoining land as if its then owner had granted them that right by deed and with all due formalities; but this would not have happened had the adjoining owner done anything to prevent this enjoyment by taking such steps as might have been necessary upon his own land.

But here we come to the real knot of the question, the very *crux* of the case. For, how is it practically possible for such an adjoining owner to prevent this enjoyment from running on into a right? He can hardly be expected to dig up the foundations of his own house, so as, by the excavation, to dispute the claim which is actually made by his neighbor to lateral or increased lateral support. Yet in no other way can the acquisition of this right be disputed; for merely to protest would be useless. This point was pressed upon all the courts in argument, and was, in fact, the main reason why the Queen's Bench Division decided against the plaintiffs, holding that it was practicably impossible for the servient owner to prevent the easement from becoming complete. But the Lord Chancellor disposed of this question by laying it down that "The policy and purpose of the law, on which both prescription and the presumptions which have supplied its place when length of possession has been less than immemorial rest, would be defeated or rendered very insecure, if exceptions to it were admitted on such grounds as that a particular servitude (capable of a lawful origin) is negative rather than positive; or that the inchoate enjoyment of it before it has matured into a right is not an actionable wrong—or that resistance to, or interruption of, it may not be conveniently practicable." But, though this must now be taken as the law, it may easily put people in a very serious dilemma. Supposing the owner of one of two old houses to pull it down and rebuild an edifice twice as high and more than twice as heavy, what course should be taken by his neighbor? If he does nothing,

then time will run on. At the end of twenty years the right to lateral support from his soil will be acquired for the new building, and he will hold his land subject to this burdensome easement or servitude. Should he also wish to pull down and rebuild, then he will be put to great expense in the way of underpinning and the like; and should anything happen to the adjoining building, he will now be liable to make compensation. In other easements this difficulty does not arise. It is true the owner of a building may open as many lights as he chooses over his neighbor's land. But should that neighbor object to their becoming ancient lights, he can erect a hoarding upon his own land, and so shut them up effectually, or compel him to come to terms and enter into an agreement by which the right will be stopped from becoming complete; so also with a claim to a right of way. Obviously, with regard to lateral support, there is no such simple method possible. Yet the House of Lords have held that the law is the same as to both classes of easements, although practically there is so serious a difference. Of course no one can secretly acquire a right; and thus, if the old building in this case had been altered internally, so as to require more lateral support, but in such a way that the change could not be easily discovered, then the plaintiffs would have failed to make good their claim. But as to this the Lord Chancellor held that an alteration of a main wall was a thing that the adjoining owner could not help seeing, and that it was, in effect, a notice to him that an extension of lateral support was being acquired, and that it should put him upon inquiry, and lead him to take such steps as might be necessary to stop the right accruing.

But though this last case has laid down an important principle, it still leaves open a point of even higher importance. The Lord Chancellor assumed that the owner of land has a right to build thereon as he chose, and, as a consequence, that the adjoining owner could not legally object to the additional servitude which was thus being imposed upon him in the way of lateral support. He held, in short, that this building or rebuilding would not be an actionable wrong for which the adjoining owner could sue and recover damages. Yet it is clear that this point is by no means certain, and that it still remains to be decided. If the courts held that an owner had a right of action against his neighbor for imposing a heavier burden upon his soil, this could be quite in accord with the Lord Chancellor's view as to the policy and purpose of our law, while it would also put the parties in a fairer position than they are at present. Although the Lords will not allow the fact that it is, to say the least of it, very inconvenient for an adjoining owner to prevent the ripening of this right to lateral support, by pulling down his own premises and digging up his own foundations, to interfere with the theory of the law; still, the existence of this awkward fact must be admitted, and cannot be denied. How it will go with any one who will be bold enough, in the future, to raise this point, we cannot guess; but we are sure that the making it an actionable wrong is the only way to reconcile the claim to lateral support with common sense and common justice. Apart from this question, however, the existing law shows that the owners of house-property have to face a new danger, and that it behooves all who propose to build or to rebuild to make careful inquiries before purchasing as to what rights have been acquired in the way of lateral support by the adjoining owners.—*The Building News.*

THE demand for bound volumes of this journal for 1880 has been such that we have had 500 additional copies bound, which we will send to any address at the reduced price of $2.00 per volume.

Architectural Competitions.

PARTICULARLY REVIEWED FROM A CALIFORNIA STANDPOINT.

The several articles which have appeared in the columns of this journal upon the subject of Architectural Competitions, have sufficiently presented the arguments, pro and con, although they might be continued to much greater length. We shall therefore confine this and future articles upon this subject mainly to our personal experiences and observations in this city and State; prefacing with the remark, that we are entirely opposed to competitions generally—believing them to be a fruitful source of many evils; and more frequently, unjust and prejudicial to the best interests of the architectural profession, than fair or beneficial; particularly so as far as the Pacific Coast is concerned, for many reasons which we shall state plainly, as covering nearly all cases of "competitions," which have come before the architects of this section of country—the exceptions being few—and that which has occurred is likely to be repeated.

Unless under the control of parties not only of fair business and general intelligence, probity, and honor, but of some practical experience or direct knowledge of the underlying principles of right, which forms the basis of all correct competitions, mistakes, injustice, and unfair results, are almost inevitable; for in this, as in all other affairs of life and business, there exists special natural or conventional elements of right, which must be observed to preserve harmonies and insure equities. The enforcement of personal conceptions and conclusions of right is defensible and proper, when affecting individual interests; but in all matters of more general character, combining diversified interests, the rule which more completely and equitably comprehends and satisfies all the conflicting elements and issues involved, should be observed, even at the sacrifice of personal views; and the absence of this right understanding has led to the numerous unpleasant results which have occurred, and surrounded competitions with so many uninviting aspects, that really competent architects hesitate or decline to engage in competitive contests.

Another objection exists in the fact, that in a majority of instances, personal or *other considerations* have been more potent than actual merit in securing the adoption of plans submitted in architectural competitions. It is an indisputable fact, that rejected plans in many instances have been far more meritorious than those accepted—some of them conspicuously so. There are several reasons for this. If the committee, whether representing the interests of the State, city, county, church, or mutual association, as a whole, or any one or more members thereof, have *points to gain*, the first and material consideration with them is to *throw the work into the hands of some pliant, usable competitor, who can be handled at pleasure*, or one who is known to be *all right in managing matters satisfactorily;* holding the plans submitted by such parties as of secondary importance, and *susceptible of change;* the change being one of the *points*, and easily accomplished by selections from accepted plans "second" and "third," which have been secured by premiums awarded for purposes, and either of which, as a whole or in the main, may be preferable to the one receiving the first premium, but made "second" and "third" for the purpose of disposing of their authors.

Reader, do not think that we are running off in wild speculative ideas, throwing mud, etc.; for we shall recite some facts before disposing of the subjects under review, which will fully justify and sustain every allegation deducible from the statements made. And if we should pursue an investgation at length into the history of competitions as a whole, we should find a *large amount of dirty work;* sometimes effected through the assents, neglects, and indifferences of really good men otherwise, and sometimes by the willful, deliberate, and intentional maneuverings of pretenders, and recognized by the public, "reliable and trustworthy" parties. For it is a lamentable fact, that very bad people sometimes disguise their real characters by the assumption of virtues not possessed, and gaining political, religious, and social standings, for the purpose of practicing designs, by no means in harmony with the upright and honest laws of either God or man.

Again: as a rule approaching universality, the statements made by the controlling parties have not only been *uncertain and unreliable*, but oftentimes *deceitful, delusive*, and sometimes *absolutely false*. We understand that this is very strong language, but it is neverthelss justified by facts; and if the true inwardness in every competition case could be known, but few would be found in which there were not *concealed purposes and preferences for certain parties* to whom advantages have been given more than to others.

The conditions and requirements prescribed and asserted in reference to cost, bonds, etc., as fixed determinations from which "no departure would allowed," have possessed no other force or practical value, than to deceive and place restraints upon those simple enough to be governed and controlled by them; while favored parties, and those understanding the science of *manipulating such matters*, have disregarded all "committee" conditions, instructions, and limitations, relying upon their abilities to secure the adoption of plans presented by them, without the slightest regard to the financial basis and other requirements adopted and proclaimed as a guide in the contest.

In this manner, many sometimes more competetent than the successful party or parties, have been placed at an unfair disadvantage; for the man who designs a building with the barrier of financial limits before him, and by him recognized as of force and effect, cannot be expected, whatever his qualifications may be as a skillful architect, to equal others who operate with full liberty of feelings, and under the advantages and inspirations which flows from unrestrained freedom to do as they please. Consequently, many competent and proficient architects are often placed low in the competitive scale, by not throwing all "prescribed basis" to the wind, and exercising their own judgment as to what will *allure and win "committee" favor and acceptance.*

Fourth.—Because, while some may have been benefited by successes in competitions, they are nevertheless demoralizing in their tendencies and general effect, both to individual members and the profession generally; for the reason that the greater number of those who engage in such contests recognize and understand that *shrewd management* is necessary to success; and while the mind and hands may be mechanically employed upon the producton of the *winning design*, the deeper and tireless thoughts and meditations are equally active in *working up points*, and devising the ways and means most likely to avoid defeat, and make success certain. Scheming, plotting, planning, and influence-seeking become, to a greater or less extent, a material feature in all cases of competitions; and truth is by no means jeopardizd by the assertion, that concealed if not glaring falsehood more generally becomes a material factor in every instance. Men who are determined to make a success of any coveted yet unassured thing seldom scruple at the means necessary to attain the coveted prize; and the more pressing and uncertain the result, the greater the diligence practiced to overcome the uncertainties, and questionable acts lose their offensiveness under probable or threatened defeat.

Fifth.—Because "building committees," or boards of trustees to whom the management of competitions are generally intrusted, seldom enjoy, as a whole or individually, more than a vague and superficial knowledge of the many essential and material considerations involved; and as a consequence, injudicious, unwise, and impractical conclusions are reached and acted upon. This is a natural consequence; for when men undertake to manage, define, and determine matters in reference to which they enjoy no really practical ideas, it is simply absurd to suppose the avoidance of gross blunders by them possible. But if this was the only material fact involved, there would be less grounds of objection; but others of more serious character exist, among the more prominent of which is, that, in all bodies where broad and full intelligence upon the questions or matters under control do not prevail in a fair degree, it more generally happens that some *one* individual member assumes to know a great deal, if not *all;* but still, in fact, not enough to understand that his *self-conceived* knowledge is more egotism than good judgment and a right understanding of necessities; but all this serves the purpose of *leading the committee*, and in many cases where the body may be composed of three, five, or ten members, the business is largely if not entirely controlled by some individual member; the rest being *willing if not desirous* to escape the work and duties of their position as committee-men, by intrusting the whole affair to the one willing individual, they holding themselves in readiness to approve almost anything that the one may recommend. The accepted rule, that "in the multitude of council there is wisdom," often fails of exemplification in plan competitions, as far as "committees" are concerned.

These statements of facts may not please some, and to others may give offense; but neither displeasure nor offense on the part of anyone can change the stubborn realities which have so often occurred, and which are likely to be repeated in a majority of cases hereafter. We know whereof we write, and are sustained in every assertion made by facts which are known to many who have suffered gross injustice from the causes set forth in these statements.

But our purpose is not to impugn the motives nor question the integrity of "competition committee-men," as a whole. The things complained of more generally arise from one or both of two causes: either that a majority of those who accept appointments upon such committees *do not comprehend* the character, requirments, and duties involved by such acceptance, which default in comprehension makes them actors in errors not deliberately intended; or, on the other hand, men who conceive projects by which they can best serve their purpose of either profit or notoriety, so manage matters as to secure for themselves controlling personal influence, through and by which, under pretexts both plausible and cunningly devised, they secure positions on committees, and for the purpose of avoiding oppositions and rendering it possible for them to exercise full sway, further secure the appointment of others as co-operating members, who are the least likely to *take much interest in the matter*, or who can be controlled by personal solicitations.

The history of any number of "competitions" fully sustains this view of the case, and we shall name some of the cases in proof, in a general way, before closing this series of articles.

We had intended this as the closing chapter upon the subject in hand, but its pursuit opens up and unfolds so many features worthiy of notice, that a necessity appears for extending its consideration into the succeeding issue of this journal.

For the purpose, if possible, of making our position clear in reference to the question under discussion, we repeat, that our severities are intended to apply only to a *large majority* of cases —the *small minority* standing upon grounds so high as to be beyond the reach of question as to abilities, intelligence, and the exact justice and fairness of their management. But in this, as in almost everything else, there have been so many bad things done by the *greater number*, that the *lesser* are brought under the clouds of well-sustained suspicions which hang over all "committees on competitive plans." And we volunteer the suggestion to honorable gentlemen who consent to serve in such capacities, that great wisdom, prudence, and exact fairness, not only as these may be personally understood, but in the broader sense conforming to the *actual rights and equities* which have existence under the strict rules of right, as they exist in all cases of fairly defined and contested competitive issues.

Men who *mean* to act fairly and *do right*, yet for want of fuller and better information *err*, must expect to suffer the reproaches which are generally meted out to those who do the same things intentionally and designedly. The censure which follows is cast upon *the doing*, and unintentionally fails to furnish a sufficient shield to those who make mistakes which impose disappointment and loss upon others. And this is not altogether unjust; for a loss or injury sustained, is equally severe and painful, whether the result of accident, unintentional error, or premediated design. The latter may be more aggravating, but the effect in either case must be the same.

Glass-Coated Tin for Fruit-Cans.

The liability of evil effects from the chemical action of acids and salts, in the substances packed in tin cans, has for a long time been a serious drawback to the canning and packing industry in this country as well as in England, and much study has been devoted to the subject of an improved material. A firm at Dunstable, England, it is said, has invented a method of coating tin-plates with a material which interposes a film resembling glass, between the surface of the metal and the fruit or other contents. The insoluble portion of the composition is silicate of lime or fluo-silicate of lime (glass powder), previously acted on by fluoric acid; the soluble portion being silicate of soda and potash. Preferably, that silicate of lime is used which has been produced by double decomposition from polysulphide of calcium, chloride of calcium, and hydrate of lime; or there may be used a silicate of the earthy bases or metals, or precipitated gelatinous silica. The alkali may be fixed or removed by a bath containing a dilute solution of fluo-silicic acid, when fluoric acid has not been used, or a dilute solution of any other suitable acid. To make the composition, mix the soluble with the insoluble silicate in equal proportions, although these may be varied according to the consistency required. The plates are coated with the composition with a brush, or by dipping into a bath. After coating, the plates are dried by heat and are ready for manufacture. This invention furnishes a plate with a surface somewhat resembling glass without the aid of fusion; and this coating, which is perfectly insoluble and unaffected by acids or salts, cannot be separated from the metal, which may be bent or worked in any manner desired, and cans thus made possess all the virtues of glass and tin.—*The Leffel Mechanical News.*

The Baltimore & Ohio Railroad Company have done something handsome in the way of organizing and endowing a beneficiary association for the benefit of their employees, which many manufacturing establishments might creditably emulate. The plan embraces life and accident insurance, and weekly allowances, and the association has a membership of over fourteen thousand, with benefit payments of nearly six thousand dollars during the past year, on account of deaths, accidents, and sickness. The company believe the better state of feeling thus promoted among their men, and the avoidance of lawsuits as a result of railroad injuries, will repay them for their expense and trouble.—*Amer. Machinist.*

Another "Old Landmark" Gone.

The old "Blumenberg Building," which in part at least has occupied the lot south-east corner of Pine and Sansome streets, during the past twenty years, has been torn down to make room for a new five-story edifice, about to be erected by the honorable Nevada Senator, Colonel Fair. To the new building we shall more particularly refer hereafter. The old edifice was one of those wretchedly constructed brick buildings, which should have been forbidden by city ordinance, as inferiority in every particular was practiced in its erection. It was erected upon leased ground, which furnishes some excuse for the omissions practiced, as far as the party holding the lease was concerned, but none in view of the fact that San Francisco *used to experience* occasional shocks of earthquakes. Although it has stood without material damage during the earth vibrations which have occurred within its history, still no one felt safe within it, and had it tumbled during any one of the shocks, or at any time, no great surprise would have been expressed. Its insufficiencies in construction were made clearly manifest in its reduction. The removal of the bricks from the walls was accomplished almost as easily as though sand only had been used in their laying up. This, however, has been of advantage to the contractor conducting the pulling-down operations, as any desired portion of the walls were tumbled without difficulty by the number of men it would have required to overthrow about the same number of dry bricks piled up in wall shape; and the slight friction received in sliding a wheelbarrow full down the "skids," a distance of one story, served to clean the apology for mortar from four fifths of the bricks. Had an "extensive conflagration" occurred within its walls during its existence, it is altogether likely that many human lives might have been sacrificed, as the walls never would have withstood the heat and the effects of falling timbers. But it has passed away, and we hope that no more of its kind will be permitted within the city limits of San Francisco.

A Revolutionary Relic.

The enterprising proprietor of a machine shop at Troy, N. Y., not to be outdone in such things, says he has secured at considerable expense a section of the tree under which Burgoyne surrendered, proposing to use it for an anvil block. Let no other shop-owner despair. Our confidence in the enterprise of the inhabitants of historic Stillwater leads to the belief that they will honor the order of every machine shop in the country for a similar section. How many of that tree are there?—*American Machinist.*

Market Reports.

LUMBER.—The demand has been steady: stock on hand is just large enough to meet the requirements of any demand made upon it. No change in prices.

Receipts since January 1st:

Lumber	124,728,354
Shingles	38,310,240
Laths	11,204,500

A correct price list of lumber will be found below:

Pine.

Common Rough, up to 40 feet, per M feet	$21 00
" 41 to 50 " "	22 00
" 51 to 60 " "	23 00
" 61 to 70 " "	25 00
" 71 to 80 " "	27 00
Refuse Rough	17 00
Common Rough, sized with planer $2 additional on above rates, per M feet.	
No. 1 Flooring, 6 inches and over,	28 00
" 4 " and under, and 1¼4 and 1¼6	30 00
Flooring and Stepping	
Rough Clear for Flooring, $1.00 less than above rates.	
Second quality Flooring add stepping, per M feet	22 50
Ship Plank, Rough	26 00
" Planed 1 side	30 00
" " 2 sides	31 00
Deck Plank, Rough	31 00
" Dressed	35 00

Laths	per M	3 50
Wool Slats	"	10 00
Shakes	"	9 00
Redwood Posts	per piece	11

Redwood.

Rough Merchantable	per M feet	21 00
" Refuse	"	17 00
Surface No. 1	"	32 50
" 1 x 6	"	30 00
" No. 2	"	25 00
Rustic, No. 1, 1 x 8	"	30 00
" No. 1, 1 x 10	"	32 50
" No. 2	"	27 50
" Under 10 feet	"	32 50
T. & G., 1¼ x 4 and 1¼ x 6	"	30 00
" 6 in. 12 ft. and over	"	28 00
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	25 00
" " No. 2	"	32 50
T. & G., Beaded, 12 feet and over	"	28 00
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	27 50
Half-inch Surface	"	25 00
Pickets, Fancy	"	18 00
" Rough, Pointed	"	15 00
" Square	"	22 50
Siding, ½ inch	per M	2 25
Shingles	"	¾c
Battens, ½ inch, lineal feet	"	

NAILS.—Remain the same as our last. Since January 1st we have imported 97,320 kegs.

10 to 60 pennies, are quoted at		$3 75
8 " "		4 00
6 " "		4 25
5 and 4 " "		4 50
4 and 5 pennies, brad heads, at		5 00
6 " "		5 25
8 " "		5 00
10 and upward "		4 75
3 penny fines "		7 25

PAINTS.—A slight improvement in the market is noted. Pioneer lead sells for 8 and 8½ cts. Atlantic 8½ and 9 cts.

Building Intelligence.

The building operations during the past month have been much less than the preceding three months. Very few houses to rent have been built during the past six months. We think property owners in certain sections of the city have let a good opportunity pass. Take the section west of Sixteenth Street. It has been a hard matter for some time to find a modern-built house to rent. And it no doubt would surprise many not conversant with the situation to take a stroll over that section and notice how few in number are the houses having the signs on them "To Rent." Labor and materials of all kinds have been very cheap; but the steady demand of the country has reduced the supply of the former so much, that it is difficult to obtain good carpenters; and as for masons, they are extremely hard to find. Very cheering indeed are the reports from all over the State. There is not a town we hear from but what has more or less buildings in process of erection. And the farmers generally are making improvements in the way of erecting new barns, repairing fences, etc. This is particularly noticeable in our grape-growing counties. There are several large buildings soon to be started in this city that will make things look a little more lively.

We emphatically protest against our contemporaries using this intelligence from our columns, and palming it off as the result of their own labors. It costs us much time and money to compile this information, and while we are perfectly willing they should copy, still we demand that this Journal should receive credit for the information here given.

SAN FRANCISCO.

Five two-story frame dwellings, with brick basement on Stanley Place, between 1st and 2nd, south of Harrison. Owner, Peter Donahue; architect, B. J. Clinch; contractor, J. J. Doyle; cost, $16,000.

Two-story frame dwelling on Shotwell street, between 21st and 22d streets. Owner, Baumgartner; architect, Chas. Geddes; contractor, W. N. Fletcher; cost, $3,500.

Two-story frame residence, with brick basement, on California street, near Scott. Owner, C. H. Light; architects, Wolfe & Son; contractor carpenter work, F. Klatt; total cost, $6,950.

Bulkhead and grading work on California street, near Scott. Owners, Light & Callahan; architects, Wolfe & Son; contractor, T. H. Day; cost, $509.

Four-story brick building on east side Mason street, between Eddy and Turk. Owner, Charles Glein; architects, Curlett & Eisen; contractors, Quinn & Hennessey; cost, $12,500.

Four-story brick building for Pilsdelphia Brewery on 2nd street, between Tehama and Folsom. Owner, John Wieland; architect, W. Winterhalter; contractor brick work, J. Haff; carpenterwork, —— Schweitzer; cost, about $85,000.

Two two-story frame dwellings on northwest corner of Geary and Devisadero streets. Owner, Charles Ahlborn; architect, H. Geilfuss; contractor carpenter work, P. Stecher; cost, $4,500.

One-story frame dwelling on east side Valencia street, between 25th and 26th. Owner, P. Kalb; architect, H. Geilfuss; contractors, Githins & O'Neil; cost, $1,500.

Two-story frame dwelling with brick foundation on southeast corner of Howard and 21st streets. Owner, W. S. Weeks; architect, J. S. Behrens; contractor, S. M. Hills; cost $6,000.

Two-story stable on corner of Buchanan and Haight sts. Owner, R. McElroy; architect, J. Marquis; contractor, J. W. Sims; cost ——.

Sacramento street, near Van Ness Avenue; three two-story and basement frame dwellings. Owner, —— Loupe; architect, P. R. Schmidt; contractor, —— Riddell; cost about $20,000.

Two-story and basement frame dwelling on Pacific Avenue, between Pierce and Steiner. Owner, —— Murray; contractor, W. N. Fletcher; architect, —— Smith; cost about $6,000.

Two-story and attic frame dwelling on Pacific Avenue, between Pierce and Steiner. Owner, ——; contractor, A. Flood; architect, —— Smith; cost, $3,500.

Five-story brick and iron building on corner of Pine and Sansome streets. Owner, Jas. G. Fair; architect, ——Gaynor; brick work, Butler & McGowan, $44,900; iron work, McConnell, $28,500; total cost of building will be about $250,000.

Brick building for factory, on Mission street, between 5th and 6th.

Additions in rear of building 1419 Howard street.

Additions to Columbia Foundry, 130 to 136 Main street. Owner, R. Llewellyn; day's work; cost about $2,000.

Two-story and basement frame building on southeast cor. of Powell and Green. Owner, —— Cassasa; contractor, G. Rocca; cost, about $2,500.

Two-story frame dwelling with rough basement on California street west of Lyon. Owner, L. Deely; days work; cost about $2,000.

One-story frame building on Pierce street, between Eddy and Ellis.

Alterations and improvements to residence on northwest corner Union and Powell. Owner, Chas. Baum; architect, McDougall & Son; day's work; cost $2,500

Raising of buildings and new brick foundation, on Powell street, between Sutter and Bush.

Two frame residences and two barns, near Bay View Distillery, Hunter's Point. Owner, E. Steiner; builder, Jos. Scheerer; cost about $6,000.

Frame residence on Hayes street, between Webster and Fillmore. Owner, Thos. Adams; architect, T. J. Welsh; contractor Chris. Chisholm; cost, $8,000.

Frame building for store, corner of Scott and Greenwich streets. Owner, H. Klinck; architect, T. J. Welsh; contractor, Jas. McCann; cost, $2,300.

Repairing and additions to building on Sutter street, bet. Laguna and Buchanan. Owner, William Miller; architect, T. J. Welsh; contractors, Gilmore & Bruce; cost, $1,580.

Tenement house on Natoma street, between 6th and 7th streets; architect, T. J. Welsh; contractor, Thos. Wilcox; cost, $1,765.

Stable on Alabama street, between 24th and 25th. Owner, Rev. P. Casey; architect, T. J. Welsh; contractor, R. Doyle.

Plans for proposed Italian church are finished. The corner stone will be laid the latter part of this month; style of architecture, Romanesque; T. J. Welsh architect.

ALAMEDA.

Cottage on Alameda Avenue, near Willow Avenue. Owner, F. W. Niese; contractor, C. Kaselau; cost, $500.

Stable on Taylor Avenue, between McPherson and Prospect streets. Owner, H. Fortmann; cost, $500.

Cottage on west side Pearl st., between Encinal Avenue and Central Avenue. Owner, E. K. Howe; builders, Gilbert & Brown; cost, $2,000.

Two-story and basement house, with stable, on Santa Clara Avenue, bet. Chestnut and Willow streets. Builders, Gilbert & Brown; cost, $7,000.

Two-story frame dwelling, with brick foundation, on S. W. corner Santa Clara Avenue and Lafayette st. Owner, Isaac Manheim; contractor, C. W. Barthman; cost, $5,000.

OAKLAND.

Two-story residence on 6th Avenue and 20th St. Owner, A. A. Moore; cost, $10,000.

Two-story brick building on Central Avenue, bet. 6th and 7th Avenues. Owner, M. Stewart; architects, Newsom Bros.; cost, $3,000.

Brick building on cor. Central Avenue and 6th Avenue. Owner, Hiram Tubbs; architects, Newsom Bros.; contractors brick work, Remillard Bros.; carpenter work by the day; cost, about $8,000.

Two-story dwelling for H. A. Moore. Contractors, Haskell & Smilie; architects, Matthews & Son; cost, about $6,500.

Two and a half-story frame dwelling, with brick foundation, cor. 16th and Filbert. Owner, Wallace Everson; architects, Newsom Bros.; day's work; cost, $15,000.

One-story cottage in North Brooklyn. Owner, Hannan; architects, T. D. Newsom & Co.; day's work; cost, $1,200.

Large additions to building are being made at the Stockyards.

STOCKTON.

Two-story brick building. Owners, Austin Bros.; architects, Percy & Hamilton; cost, about $20,000.

Three-story pressed brick front building. Owners, Matterson & Williamson; architects, Percy & Hamilton; day's work; cost, about $10,000.

LIVERMORE.

Two-story frame building on 1st St. Owner, S. Levy; cost, $2,400.

Two-story frame building on 1st St. Owner, Fred. Mally; architect, E. L. Fischer; contractors, Meyers & Bradshaw; cost, $2,200.

Two-story frame building, parsonage for Catholic Church, on Main St. Cost, $3,000.

Two-story frame residence, near town. Owner, Daniel Inman; contractor, H. Harrington; cost, $4,000.

One-story frame building. Owners, Gelich Bros.; cost, $800.

One-story frame residence, near town. Owner, C. G. Sperry; contractors, Smith & Hatch; cost, $1,000.

One and a half-story residence, near town. Owner, H. Dougherty; cost, $1,500.

SAN JOSE.

Two-story dwelling, on the Alameda. Owner, Capt. Rogers; architect, J. Gash; contractor, A. J. McIlwain; cost, $5,000.

Hall to be used for school-house and church at Los Gatos. Built by the Catholic Fathers of Santa Clara. Contractor, Cornelius Drew; cost, $1,200.

The Brush Electric Light Company are erecting a tower, to be used to illuminate the streets in place of gas. It is to be 200 feet high. Architect, John Gash; builder, — Campbell; cost, $2,500.

RIVERSIDE.

Dwelling north of town. Owner, J. H. Fountain; cost, $2,500.

Photograph gallery. Owner, A. M. Turner.

H. M. Beers is erecting a frame building.

C. J. Gill is erecting a residence. Contractors, Boggs & Ripley; cost, $2,000.

Mr. Branch is building a two-story residence.

SACRAMENTO.

Two-story frame residence, with brick foundations, on west side 8th St., between N and O. Owner, P. J. Spacher; architect, A. A. Cook; contractor, W. H. Mead; cost, $2,200.

Raising of and additions to a two-story and basement residence on corner of 4th and M streets. Owners, Locke & Travenson; architect, A. A. Cook; contractor, Wm. Snarr; cost, $4,000.

RED BLUFF.

Two-story frame residence, with brick foundation. Owner, John Heavy; architect, A. A. Cook; contractor, Hans Hansen; cost, $4,100.

Two-story brick building, corner Main and Pine streets. Owner, M. Corrigan; contractor, Hans Hansen; cost, $8,000.

Two-story frame dwelling on Jefferson St. Owner, N. Crocker; contractor, Hans Hansen; cost, $3,100.

MISCELLANEOUS.

RUTHERFORD.—Barn, 30 x 40. Owner, Beerstecher.

Large stable for Capt. Neibaum; contractor, J. W. McMillan.

ST. HELENA.—Additional story to fermenting house; also, building for a distillery. Owners, Beringer Bros. Two-story dwelling on Charter Oak Avenue. Owner and builder, J. W. McMillan.

CORDELIA.—Large wine cellar. Owner, Judge Hastings.

FORT COSTA.—Granger's Business Association is erecting a large warehouse and wharf.

DALLES.—Two-story frame dwelling on corner 4th and Liberty streets. Owner, J. S. Schenck; contractor, H. Glenn; cost, $6,000.

WHEATLAND.—Two-story brick building 52 x 85 on 4th street. Owners, I. O. O. F.; architect, A. A. Cook.

NEVADA CITY.—Additions to a two-story frame schoolhouse. Owner, Nevada City; architect, A. A. Cook; cost, $5,600.

BENICIA.—Additions to the freight depot at the Arsenal; contractor, Charles Davis.

DIXON.—Two-story school building. Brick contractor, Geo. Murray; carpenter work, Henry & Pritchard; cost, $6,100.

TEHAMA.—Brick warehouse, 60x202.

COLUSA.—Two-story brick school-house. Architects, Newsom Bros.; cost, $12,000.

PETALUMA.—Three-story brick building, with basement, for the Masonic Order. Architect, W. Schrof; cost, about $30,000.

J. F. Cook is building a two-story residence on the county road, six miles from town.

WOODLAND.—Mr. Barnes is erecting a brick building for a hotel.

PINOLE.—Several buildings are in process of erection at this point.

Publication Notices.

We have received Vol. I. of "*Palliser Useful Details*," published by Palliser, Palliser & Co., Bridgport, Conn. It consists of over forty pages—30x26 inches—each page being filled exclusively with details in original design, showing about every conceivable thing in connection with house construction and finishing. The publication price of $3 per volume is certainly very low for a publication containing so large an amount of practical information and instruction. It cannot be otherwise than useful to all practical architects, and especially so to students of architecture, and builders who undertake the construction of buildings for which plans and details are not furnished by architects. Orders for same received at this office, and copies sent to any address as soon as a supply can be had from the East.

"*Twenty Thousand Synonyms*," arranged in "bird's-eye view" form, by Lebbus H. Rodgers, of New York, is a useful and handy sheet for those who "drive the quill" to any extent, and desire to avoid the disagreeable practice of repeating the same word many times in the same connection. In addition to the 20,000 "synonymous words," other valuable tables, and rules for spelling, punctuation, use of capital letters, letter writing, etc., accompany. Price, 25 cents per copy.

The *Kansas City Review* is always interesting and welcome. Its August number contains numerous articles upon Ethnology, Anthropology, Botany, Astronomy, Meteorology, etc., etc.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

Numerous other meritorious publications would receive notice at this time, but together with a large amount of interesting matter on hand, are necessarily crowded out, notwithstanding the increase of pages in this issue of this journal. **We consequently urge upon our friends ONE AND ALL, to come up with Additional Subscriptions, so that we may be enabled to increase the number of its pages to 40, and so provide ample space for nearly double the present amount of reading matter.**

The California Architect and Building Review.

VOLUME II. NUMBER 9. } SAN FRANCISCO, SEPTEMBER, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect

—— AND ——

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,

240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,

Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 *per annum, with extra cost of postage when sent to Foreign Countries.*

Entered at the Post Office at San Francisco, Cal., as second-class matter.

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion	$1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion	1 25
On other inside pages, per square, each insertion	1 00

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Present Appearances.

No movement of special large importance has developed since our August issue. But the general sentiment among all classes is, that a still greatly improved condition of things is in store for the people of California. We have recovered from the next to death-like inactivities of late preceding years, and approached that degree of prosperity in all lines of operation, which recall the years when the sunbeams of "doing well" shone upon the pathway of all, and none who were willing to work found excuse for idleness.

The piles of building materials to be seen in all sections of the city indicate the state of facts surrounding building activities. From any of the prominences within the city limits, new constructions may be seen in all directions. True, the number of mechanics which were once in San Francisco has greatly diminished; but those who remain find but little difficulty in obtaining employment; except it be those who would always rather "hunt for work" than perform labor, so long as they can procure means and methods of living, without starvation or actual suffering.

Reports from various county and town districts represent a most lively and prosperous condition of things, and a healthful state of affairs rule all around. There is, perhaps, less doing in our sister city across the bay, Oakland, than in any other corporate community in the State. This is natural enough; for while San Francisco was groaning under the infliction of Kearneyism, and numbers were leaving through fear or disgust, Oakland reaped benefits from San Francisco's losses, as many located there and in other near localities, rather than remain under the semi-terrorism created by the spirits which controlled the bubble "reform movements" proclaimed in 1878–9. Consequently, a large amount of building was done in Oakland—more than sufficient to meet natural growth and demand, and the present dullness in that city is not to be wondered at. Oakland is by no means exhausted, and the prevailing lull will change into at least fair activities, in due course of time, although at present there is next to nothing being done in house construction.

"Number Ten."

The *Evening Bulletin* still persists in making itself ridiculous, by occasionally publishing something for people to laugh at, in the shape of "copyrighted" absurdities. The last—No. 10—is about the worst yet produced, possessing not a single admirable feature in plan or design, and specifications which would not be creditable even to a country carpenter, who had "picked up" his trade in the western wilds of civilization.

The plan portion of No. 10 is too absurd to justify a single comment, and we should pass the whole affair as unworthy notice, were it not that the proprietors of that journal arrogate to themselves integrity and intelligence in its management. To whatever extent these traits may be practiced in other connections, they are conspicuously absent in the "copyrighting" department, which has been a continuous series of absurdities and false representations.

The statement that, "with such complete directions," etc., clearly illustrates willful purpose to deceive and mislead, or consummate ignorance or stupidity in reference to the subject-matter represented. In proof of this, it is only necessary to quote a single section of the specifications, which is characteristic of the whole as to "completeness."

"PLUMBING AND TIN WORK."

"Provide and properly fix" (*fix* is a good phrase when one does not understand the proper term to use) "one cast-iron slop-hopper, and *put* from same a 3-inch No. 24 galvanized-iron pipe connected with the drain-pipe."

"*Lay on*" (Macbeth!) "as directed *from the tank in the roof* galvanized-iron water service pipes to the sink and the slop-hopper, and with a stop-cock near tank."

(As no supply-pipe *to* the tank is mentioned, we presume that the well, spring, or water source is contained in the tank itself; and as no *size* of pipe is mentioned, the kind of "completeness" practiced is made apparent.)

"The sink to have *brass screw-bottom*, hot and cold water-cock, and brass strainer to the waste."

(Who would dare to say that this is not "complete"—stupidity?)

"The slop-hopper to have a brass hose-cock."

(A "completely" new idea. But why should not slop-hoppers have brass cocks?)

"The sink to have a 2-inch lead waste-pipe, properly trapped, with brass trap-screw, connected with the *drain-pipe*."

(Connecting the stop-cock with the *drain-pipe*, as suggested by the "complete" document, instead of attaching to the trap itself, is new, if not sensible.)

"Cover the projections of the outside finishes where required with tin or zinc, properly *dressed* and tacked."

"*Put* tin flashings *around* the chimneys, properly *chased, stopped, dressed, fastened*, and *stopped in*."

We have given all that is said about plumbing and tin work, and if there is a man on earth who is able to betray more completely his "complete" incompetency and want of architectural intelligence, he would be a profitable investment for the show-man.

We agree with our contemporary in the *use* of the term "complete," but not in its *application*. Why these fraudulent, deceptive, and untruthful representations are perpetrated by a respectable journal is beyond the comprehension of all intelligent architects and builders. For the "specifications" are wholly deficient throughout, and only calculated to misguide those who are simple enough to accept them. Any man "possessing limited mechanical knowledge" as a builder would be able to provide a far better specification, if he meant honest work and fair dealings with the owner, and if, upon dishonest intent, with innumerable extras in view, the document commended by the *copyrighting journal* as "complete" would serve such purposes completely.

The Refreshing Showers are Falling.

The large increase of subscribers to this journal during the past month is of the most gratifying character. Within the limits of San Francisco the returns have been cheering; while from distant places, reaching from New South Wales to Canada, and from all portions of the United States, they have come in pleasing numbers.

There are many reasons why this should be so. "Everybody" says that the CALIFORNIA ARCHITECT AND BUILDING REVIEW is an excellent journal—equal to any published in the Eastern States; that just such a journal is needed upon the Pacific coast; that its influence has already made a decided impression upon the building interests in all departments; and that in time it must and will become a power for good, to owners of real estate, architects, contracters, and mechanics generally. All of which is true, and to its present good qualities others will be added, until we shall be able to challenge criticism.

The Steel Square.

We commence in this number a series of articles upon the steel square, in which we shall seek to pursue its history, manufacture, description, and uses, to an extent that will be both pleasing and instructive to our readers. The subject is one of diversified interest, and we seall be indebted to any of our readers who will furnish us with illustrations of special character. Almost every man who uses the square has discovered some new application peculiarly his own; and we hope that the mechanics of the Pacific coast will assist us in making this the most instructive and valuable treatise on the steel square yet published.

No Rats in the Pacific Isles.

It is a remarkable fact that there are no rats in the islands of the Pacific Ocean. Repeated attempts have been made to acclimatize the rodents there, as the flesh is much relished by the natives as an article of food, but the attempts thus far have failed, as they invariably die of consumption.—*L'Union Med.* (Of course, of course.)

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

A New Principle in Cast-Iron Girders.

MODE OF USING CAST-IRON WHEN SUBJECT TO TRANVERSE STRAIN, BY WHICH ITS WHOLE CROSS SECTION IS COMPRESSIVELY EMPLOYED WITHOUT TAXING ITS COMPARATIVELY FEEBLE TENSILE RESISTANCE.

Cast-iron possesses the enormous compressive resistance of 93,000 pounds to the square inch, while its tensile strength is but from 14,000 to 15,000 pounds. The ratio computed by Mr. Hodgkinson is about 6½ to 1.

The object attained in this construction is a perfect girder. When employed, the bottom or tie rod is tension, and the arch is compression in every part, with no tensile strain whatever; *the latter an object never before attained.* The antagonistic force of compression to resist the tensile strain of the tie rod is exerted at the bottom or intrados of the arch, and this force is increased in the ratio of the increment of the load on the arch. The remaining part of the arch above the bottom is naturally compression due to the load. A summary of the peculiarity of this arch is as follows:

Device for employing cast-iron, compressively neutralizing the tensile strain due to transverse strain. The tensile strain on tie rods reciprocally utilized in compressive resistance at the intrados of the arch, thus destroying tensile strain in every part of its cross-section. Another advantage in construction of a metallic girder made in sections of its length, should the tensile strain at the intrados of the arch exceed that of compression by the action of the tie rods, *the deflection of the arch is limited to the length of a bay only.* For instance, a girder 150 feet in length, made in ten bays, each 15 feet long, the deflection that would injure the strength of the material in the arch *is limited to the length of a bay of 15 feet,* instead, as in other constructions, its weakness by deflection would *extend over its whole length.*

The neutral axis of this girder exists between the tie rod and the bottom or intrados of the arch, or midway between the antagonistic forces. With the segmental arch in one piece, and the tie rod to resist the neutral axis, it is near the bottom of the arch and travels upward as the load is increased, as the neutral axis will exist wherever the two opposite forces cease to exist, being indifferent to either force. The economy in the use of this *neglected material—cast-iron—for long spans when subject to cross strain, is in its employment by which its tensile strength is not called into play;* also another grave objection is by an unequal distribution of the metal, causing weakness in the casting when forming from the molten to the solid state, and from that condition until cold. The heavy parts in contraction control the thin or weaker parts; or if the formation of the mold is such that the ends of a long casting set deep in the mold and offer a resistance to the contraction of the metal when forming from a liquid to a solid state, both of these inherent weaknesses continue and increase till cold. These weaknesses are entirely due to separation, or taxing its comparatively feeble tensile strength, *and not in the least injuring it in its compressive resistance;* as cast-iron is never in a contracted state other than cold; and as long as cast-iron is used compressively, it makes no difference how many pieces it may be in its length, providing its abutting parts squarely or equally meet, and are kept in line. Take, for instance, the area of the abutting parts of the 25-foot girder shown, or the cross-section of the bottom flange in the centre of a bay, it being 16 inches wide by 1⅛ inches thick, equals 18 inches.

Eighteen (18) inches multiplied by 93,000 pounds to the inch equals 1,674,000 pounds, or 744 tons. Taking it at one-fourth when employed, we have the resistance of 186 tons as a safe employed load. The area of the tie rods to resist this compression at 8 tons working strain per inch, provided the arch has proper rise, would be 23½ inches, or more than three of three (3) inches diameter rods. Tie rods are cheap—merely bars of wrought iron with threads and nuts.

A railroad train entering on a bridge borne by these girders, the opposite end is prevented from raising by the abutting parts on the bottom of the arch compressively exerted. There is no part of the arch in which tensile strain is employed. The object of this device was to *construct a perfect girder.* The whole arch resisting in compression the tensile strain necessarily exerted; and using this essential resistance to render indifferent a most destructive force to cast-iron, viz., *tensile strain;* showing an economy in this mutual antagonism, an equilibrium, and forces negatived. I have endeavored to make a continuous arch, embodying the principles of the Voussoir arch. Mine is a sectional continuous arch, employed compressively over its entire cross-section.

A Voussoir arch is composed of many blocks to make up its length, and without the use of cement or mortar between the blocks; with the exception of friction of the blocks as they slide downwards, taking a more compressed position as the load upon them is increased or the abutments yield. There is no tensile strain whatever upon them; and the calculation only has to be made as to the strength of the material in its compressive resistance. With a continuous segmental arch, made in one piece of its length, there is at every point a bending moment and a thrust force. Therefore, a continuous arch brings into play both compression and extension, as that of a straight girder, but with more of compression than extension. See page 9 of W. Airy's book on Iron Arches.

With an iron arch in one piece of its length, the wrought iron tie rods elongate in the ratio of 1-1000 of its length to every ten tons tensile strain per square inch of cross-section; and this elongation is considered the measure of the elastic force of the metal.

At this strain the elongation would be for a 25-feet girder, same as shown in the drawings A, 3-10 of an inch; and 25 feet equals 300-1000 inches, equals 3-10 of an inch. At this elongation of the rods, be the material of the arch cast or wrought iron, the arch loaded will have so far straightened as to cause great tensile strain at the bottom, giving free play to the tensile strain caused by the load.

By this formation of cast-iron into girders for long spans, using it compressively in the manner of employing cast-iron columns, having a resistance of 60 per cent. in excess of wrought-iron; that is, comparing the tensile strength of wrought-iron at 25 tons to the inch, and the compressive resistance of cast-iron at 41 tons, or the compressive resistance of wrought iron at 18 tons to that of cast-iron 41 tons, is equal to 227 per cent; also that it is so shaped that its deflective strength for long spans may be made in as short sections as desired, and the tensile strain on the rods as increased is utilized to destroy the power of the load to rupture the arch, and introducing in the way proposed for long spans, and subject to cross-strain, this *now neglected and discarded material,* so easy of formation into any shape, and so quickly made, and cheaply, too, requiring but little fitting after the castings are made. The prime cost of a 25-foot girder is $150. The girders in common use in this city, to sustain 100 tons, and 25 feet long, supported only at the ends, are sold at about $350 each.

P. H. JACKSON.

APOLOGETIC.—Personal and family illness has rested heavily upon us during the past two weeks, and to some extent interfered with our editorial and professional labors.

EDITOR CALIFORNIA ARCHITECT:—Your Journal is a welcome monthly visitor, and I assure you that I read it with great interest. I heartily agree with the sentiments expressed in an article in your July number, headed, "Better than a Lien Law."

It seems to me that if the doctrine advocated in that article controlled business transactions more, there would be a better state of things; and men would cultivate honesty instead of trying to get the advantage in all they undertake. It is but little use for a man to try and act square, for if he does, others will try to beat him out of a chance to live, by taking work so cheap that no honest man can live, and pay his way, at the prices for which many jobs are taken. In my opinion, there ought to be a law that no moneys paid by owners should be used for any other purpose than paying the bills due on the work, both for wages and materials, and the party receiving the money should not have the right to apply it to any other purpose

It is all very well to talk about the right to do as you please, and personal liberty; but when men can only have these by cheating other people out of their money, then I think there ought to be less of such liberty and freedom allowed by law.

SUBSCRIBER.

If the rule prevailed, or the statutes of the State made it so, that all moneys paid by owners should be held and used solely for the purposes of their payment, without any discretionary rights upon the part of the party receiving them, to appropriate or apply them to purposes, other than those clearly and legitimately within the operation calling for their payment, the basis of action would become healthful. It is all well enough to boast of personal rights, and freedom of action but when the enjoyment of these imposes losses upon others, the losing feature assumes a distasteful aspect. It is delicious to revel in "perfect liberty," and feel that there is no power of restraint to check the exercise of "inalienable rights"; but not so pleasant on the part of those at whose expense such glorious things are enjoyed. And it were well that limits to personal liberty were fixed, so that men would not always dare to do as they please with moneys intrusted to them for certain implied specific purposes. And if the law of the State made it imperative upon those receiving contract moneys to preserve the correctness of their use and application, there would not be a hundreth part of the failures which do occur. The rule that men may do as they please with moneys received in business transactions, while their solvency is questionable and unestablished, is by no means a good one. Better that men fail upon the first, rather than multiply unwise contract engagements, and extend and increase indebtness by repeating losses upon successive operations, until the "lapping" process will reach no farther, and submissson to absolute insolvency becomes inevitable.

Mummy Paint.

A gentleman passing through Long Acre the other day peeped into a little shop, and started suddenly at the sight of several dead bodies. They had been dead for over 2,000 years; they were mummies. Where did they come from? From Thebes. Are more coming? Yes, plenty. There appears to be a regular business going on in mummies, between Thebes and Long Acre. The mummies are brought over enveloped in their rich bituminous covering, and *horresco referens*—ground up, bones, casing, coverings, bitumen, and all. What for? Why, for paint. There seems to be no burnt sienna like ground mummy. The artists are willing to pay high prices for this mummy paint. Our academy walls may be limned with the dust of the Ptolemies. —*London Truth.*

The History of the Steel Square.

Being a History and Description of the Square. Methods and rules given by which the length and bevels are obtained of all kinds of rafters, braces, collar beams, brackets, etc. Its application to the various cuts in stair building. The whole designed to be a complete *help* to mechanics, by which they can work in a systematic manner all the various problems in regard to the *cuts in carpentry.*

Architecture is necessarily one of the oldest of the arts. Men were forced to build dwellings of some kind before they could find leisure to indulge the instinct for music, painting, or sculpture. In the process of development, the conception of the square must have been one of the earliest plane figures, and have come into use early in various combinations. Men may have dwelt in caves at first; but after the first rude hut was invented, made of reeds, branches, bark, etc., came the more substantial hut formed by laying down the trunks of two trees parallel, and crossing them with others laid at either end, and so building up by layers successively placed in a similar way. Such were the buildings of the earliest Chaldeans, Assyrians, Egyptians, Phœnicians, and others.

The square figure is seen in the represented designs of the Tower of Babel, one of the earliest important known structures. It is probable that it existed in the ark still earlier. This takes us back in the common chronology twenty-four centuries before the Christian Era. The City of Babylon was a perfect square, and the bricks used in its buildings and walls were square; so probably were those in Babel. Now, to form small squares correctly, and to introduce them in endless combination into buildings, it needed a guiding instrument of some kind. So the square, as a constructive tool, came into use.

Among the ruins of Babylon, Ninevah, and Petra, it is said to have been found represented. There are pictures and sculptures from the ruins of Thebes in Egypt, showing the square in the hands of the artisan. A whole "kit" of tools was found in a tomb in Thebes, consisting of hammers, adzes, hatchets, chisels, and *squares. This is the most satisfactory evidence we have of the earliest use of this tool.* Marks upon some of these show that they were made nearly thirty-five centuries ago; and as the mechanic arts at that time in Egypt were at the hight of their development, these tools must have been known to that people over 4,000 years ago. We need not be surprised that they used the square, when we see what good square work they did 2,000 years before Christ.

Evidences of its use are also seen in ruins in India, which are thought by some to antedate those found in Egypt. Among the ruins of the Aztecs, or people before them, in Peru and Brazil, it has also been found; and though tools of stone and flint, such as axes, hatchets, hammers, etc., were doubtless the first used by the primitive man in these ruins that date back beyond history, the square is found, and specimens may be seen in the British Museum.

The Greeks were an inventive and poetic people, and they created for themselves all things afresh. They lay claim to the invention of tools. But the mechanics' arts flourished in these old first empires ages before Greece was known. The Greeks ascribed the invention to Dœdilus; but he was a myth—only the type of a skilled artisan. Herodotus, the father of Greek history, does not mention him; neither does Homer. In his poems, Homer mentions the hatchet, plane, augur, and *rule;* but not the square, unless by *rule* he means the square. He lived about 800 years before Christ, as supposed. Pliny says that Theodorus, a Greek of Samos, invented the square and level. He was a very eminent architect in his time; but the square, as we have seen, was in use before Greece was known; and it must have been used before his time even in Greece, as Athens was built before his day.

The square was regarded by the ancients as a symbol of completeness. Simonodes speaks of a man, square as to his hands feet, and his mind, etc. Aristotle uses a similar figure. We have borrowed from them the metaphor, and speak of acting on the square, square accounts, square meals, etc.

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When the Temple of Solomon was built, we are told that "no ax, nor hammer, nor saw, nor any instrument of iron" was heard in the building. The great timbers were hewn and shaped so exactly in the forests of the distant mountains by the skillful men of Tyre, that when they were shipped over the sea and lifted to their places quietly on the sacred hill, no instrument of iron was needed. They fitted exactly as if they had grown there, like the joints of the human body. The men who could thus square their work command our admiration as we look back upon them through the dim and clouded history of the centuries; but still they did not know the square as we know it. In fact, we did not ourselves know its full uses, intelligent as we Americans claim to be, until recently. The Steel Square, with its *body,* and its *tongue,* and its *heel,* with their graduated lines, the *octagonal square,* the *brace measure,* the *one-hundredth scale,* the *Essex Board Measure,* etc., is an invention known only within a few years.

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[TO BE CONTINUED.]

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A New Principle in Cast-Iron Girders.

MODE OF USING CAST-IRON WHEN SUBJECT TO TRANVERSE STRAIN, BY WHICH ITS WHOLE CROSS SECTION IS COMPRESSIVELY EMPLOYED WITHOUT TAXING ITS COMPARATIVELY FEEBLE TENSILE RESISTANCE.

Cast-iron possesses the enormous compressive resistance of 93,000 pounds to the square inch, while its tensile strength is but from 14,000 to 15,000 pounds. The ratio computed by Mr. Hodgkinson is about 6½ to 1.

The object attained in this construction is a perfect girder. When employed, the bottom or tie rod is tension, and the arch is compression in every part, with no tensile strain whatever; *the latter an object never before attained.* The antagonistic force of compression to resist the tensile strain of the tie rod is exerted at the bottom or intrados of the arch, and this force is increased in the ratio of the increment of the load on the arch. The remaining part of the arch above the bottom is naturally compression due to the load. A summary of the peculiarity of this arch is as follows:

Device for employing cast-iron, compressively neutralizing the tensile strain due to transverse strain. The tensile strain on tie rods reciprocally utilized in compressive resistance at the intrados of the arch, thus destroying tensile strain in every part of its cross-section. Another advantage in construction of a metallic girder made in sections of its length, should the tensile strain at the intrados of the arch exceed that of compression by the action of the tie rods, *the deflection of the arch is limited to the length of a bay only.* For instance, a girder 150 feet in length, made in ten bays, each 15 feet long, the deflection that would injure the strength of the material in the arch *is limited to the length of a bay of 15 feet,* instead, as in other constructions, its weakness by deflection would *extend over its whole length.*

The neutral axis of this girder exists between the tie rod and the bottom or intrados of the arch, or midway between the antagonistic forces. With the segmental arch in one piece, and the tie rod to resist the neutral axis, it is near the bottom of the arch and travels upward as the load is increased, as the neutral axis will exist wherever the two opposite forces cease to exist, being indifferent to either force. The economy in the use of this *neglected material—cast-iron—for long spans when subject to cross strain, is in its employment by which its tensile strength is not called into play;* also another grave objection is by an unequal distribution of the metal, causing weakness in the casting when forming from the molten to the solid state, and from that condition until cold. The heavy parts in contraction control the thin or weaker parts; or if the formation of the mold is such that the ends of a long casting set deep in the mold and offer a resistance to the contraction of the metal when forming from a liquid to a solid state, both of these inherent weaknesses continue and increase till cold. These weaknesses are entirely due to separation, or taxing its comparatively feeble tensile strength, *and not in the least injuring it in its compressive resistance;* as cast-iron is never in a contracted state other than cold; and as long as cast-iron is used compressively, it makes no difference how many pieces it may be in its length, providing its abutting parts squarely or equally meet, and are kept in line. Take, for instance, the area of the abutting parts of the 25-foot girder shown, or the cross-section of the bottom flange in the centre of a bay, it being 16 inches wide by 1⅛ inches thick, equals 18 inches.

Eighteen (18) inches multiplied by 93,000 pounds to the inch equals 1,674,000 pounds, or 744 tons. Taking it at one-fourth when employed, we have the resistance of 186 tons as a safe employed load. The area of the tie rods to resist this compression at 8 tons working strain per inch, provided the arch has proper rise, would be 23¼ inches, or more than three of three (3) inches diameter rods. Tie rods are cheap—merely bars of wrought iron with threads and nuts.

A railroad train entering on a bridge borne by these girders, the opposite end is prevented from raising by the abutting parts on the bottom of the arch compressively exerted. There is no part of the arch in which tensile strain is employed. The object of this device was to *construct a perfect girder.* The whole arch resisting in compression the tensile strain necessarily exerted; and using this essential resistance to render indifferent a most destructive force to cast-iron, viz., *tensile strain*; showing an economy in this mutual antagonism, an equilibrium, and forces negatived. I have endeavored to make a continuous arch, embodying the principles of the Voussoir arch. Mine is a sectional continuous arch, employed compressively over its entire cross-section.

A Voussoir arch is composed of many blocks to make up its length, and without the use of cement or mortar between the blocks; with the exception of friction of the blocks as they slide downwards, taking a more compressed position as the load upon them is increased or the abutments yield. There is no tensile strain whatever upon them; and the calculation only has to be made as to the strength of the material in its compressive resistance. With a continuous segmental arch, made in one piece of its length, there is at every point a bending moment and a thrust force. Therefore, a continuous arch brings into play both compression and extension, as that of a straight girder, but with more of compression than extension. See page 9 of W. Airy's book on Iron Arches.

With an iron arch in one piece of its length, the wrought iron tie rods elongate in the ratio of 1-1000 of its length to every ten tons tensile strain per square inch of cross-section; and this elongation is considered the measure of the elastic force of the metal.

At this strain the elongation would be for a 25-feet girder, same as shown in the drawings A, 3-10 of an inch; and 25 feet equals 300-1000 inches, equals 3-10 of an inch. At this elongation of the rods, be the material of the arch cast or wrought iron, the arch loaded will have so far straightened as to cause great tensile strain at the bottom, giving free play to the tensile strain caused by the load.

By this formation of cast-iron into girders for long spans, using it compressively in the manner of employing cast-iron columns, having a resistance of 60 per cent. in excess of wrought-iron; that is, comparing the tensile strength of wrought-iron at 25 tons to the inch, and the compressive resistance of cast-iron at 41 tons, or the compressive resistance of wrought iron at 18 tons to that of cast-iron 41 tons, is equal to 227 per cent; also that it is so shaped that its deflective strength for long spans may be made in as short sections as desired, and the tensile strain on the rods as increased is utilized to destroy the power of the load to rupture the arch, and introducing in the way proposed for long spans, and subject to cross-strain, this *now neglected and discarded material,* so easy of formation into any shape, and so quickly made, and cheaply, too, requiring but little fitting after the castings are made. The prime cost of a 25-foot girder is $150. The girders in common use in this city, to sustain 100 tons, and 25 feet long, supported only at the ends, are sold at about $350 each.

P. H. JACKSON.

APOLOGETIC.—Personal and family illness has rested heavily upon us during the past two weeks, and to some extent interfered with our editorial and professional labors.

EDITOR CALIFORNIA ARCHITECT:—Your Journal is a welcome monthly visitor, and I assure you that I read it with great interest. I heartily agree with the sentiments expressed in an article in your July number, headed, "Better than a Lien Law."

It seems to me that if the doctrine advocated in that article controlled business transactions more, there would be a better state of things; and men would cultivate honesty instead of trying to get the advantage in all they undertake. It is but little use for a man to try and act square, for if he does, others will try to beat him out of a chance to live, by taking work so cheap that no honest man can live, and pay his way, at the prices for which many jobs are taken. In my opinion, there ought to be a law that no moneys paid by owners should be used for any other purpose than paying the bills due on the work, both for wages and materials, and the party receiving the money should not have the right to apply it to any other purpose

It is all very well to talk about the right to do as you please, and personal liberty; but when men can only have these by cheating other people out of their money, then I think there ought to be less of such liberty and freedom allowed by law.

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If the rule prevailed, or the statutes of the State made it so, that all moneys paid by owners should be held and used solely for the purposes of their payment, without any discretionary rights upon the part of the party receiving them, to appropriate or apply them to purposes, other than those clearly and legitimately within the operation calling for their payment, the basis of action would become healthful. It is all well enough to boast of personal rights, and freedom of action but when the enjoyment of these imposes losses upon others, the losing feature assumes a distasteful aspect. It is delicious to revel in "perfect liberty," and feel that there is no power of restraint to check the exercise of "inalienable rights"; but not so pleasant on the part of those at whose expense such glorious things are enjoyed. And it were well that limits to personal liberty were fixed, so that men would not always dare to do as they please with moneys intrusted to them for certain implied specific purposes. And if the law of the State made it imperative upon those receiving contract moneys to preserve the correctness of their use and application, there would not be a hundreth part of the failures which do occur. The rule that men may do as they please with moneys received in business transactions, while their solvency is questionable and unestablished, is by no means a good one. Better that men fail upon the first, rather than multiply unwise contract engagements, and extend and increase indebtness by repeating losses upon successive operations, until the "lapping" process will reach no farther, and submissson to absolute insolvency becomes inevitable.

Mummy Paint.

A gentleman passing through Long Acre the other day peeped into a little shop, and started suddenly at the sight of several dead bodies. They had been dead for over 2,000 years; they were mummies. Where did they come from? From Thebes. Are more coming? Yes, plenty. There appears to be a regular business going on in mummies, between Thebes and Long Acre. The mummies are brought over enveloped in their rich bituminous covering, and *horresco referens*—ground up, bones, casing, coverings, bitumen, and all. What for? Why, for paint. There seems to be no burnt sienna like ground mummy. The artists are willing to pay high prices for this mummy paint. Our academy walls may be limned with the dust of the Ptolemies. —*London Truth.*

The History of the Steel Square.

Being a History and Description of the Square. Methods and rules given by which the length and bevels are obtained of all kinds of rafters, braces, collar beams, brackets, etc. Its application to the various cuts in stair building. The whole designed to be a complete *help* to mechanics, by which they can work in a systematic manner all the various problems in regard to the *cuts in carpentry.*

Architecture is necessarily one of the oldest of the arts. Men were forced to build dwellings of some kind before they could find leisure to indulge the instinct for music, painting, or sculpture. In the process of development, the conception of the square must have been one of the earliest plane figures, and have come into use early in various combinations. Men may have dwelt in caves at first; but after the first rude hut was invented, made of reeds, branches, bark, etc., came the more substantial hut formed by laying down the trunks of two trees parallel, and crossing them with others laid at either end, and so building up by layers successively placed in a similar way. Such were the buildings of the earliest Chaldeans, Assyrians, Egyptians, Phœnicians, and others.

The square figure is seen in the represented designs of the Tower of Babel, one of the earliest important known structures. It is probable that it existed in the ark still earlier. This takes us back in the common chronology twenty-four centuries before the Christian Era. The City of Babylon was a perfect square, and the bricks used in its buildings and walls were square; so probably were those in Babel. Now, to form small squares correctly, and to introduce them in endless combination into buildings, it needed a guiding instrument of some kind. So the square, as a constructive tool, came into use.

Among the ruins of Babylon, Ninevah, and Petra, it is said to have been found represented. There are pictures and sculptures from the ruins of Thebes in Egypt, showing the square in the hands of the artisan. A whole "kit" of tools was found in a tomb in Thebes, consisting of hammers, adzes, hatchets, chisels, and *squares. This is the most satisfactory evidence we have of the earliest use of this tool.* Marks upon some of these show that they were made nearly thirty-five centuries ago; and as the mechanic arts at that time in Egypt were at the hight of their development, these tools must have been known to that people over 4,000 years ago. We need not be surprised that they used the square, when we see what good square work they did 2,000 years before Christ.

Evidences of its use are also seen in ruins in India, which are thought by some to antedate those found in Egypt. Among the ruins of the Aztecs, or people before them, in Peru and Brazil, it has also been found; and though tools of stone and flint, such as axes, hatchets, hammers, etc., were doubtless the first used by the primitive man in these ruins that date back beyond history, the square is found, and specimens may be seen in the British Museum.

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The square was regarded by the ancients as a symbol of completeness. Simonodes speaks of a man, square as to his hands feet, and his mind, etc. Aristotle uses a similar figure. We have borrowed from them the metaphor, and speak of acting on the square, square accounts, square meals, etc.

But though the square as a tool was known and used thousands of years ago in India, in the valley of the Euphrates and of the Nile, in the cities of Pompeii and Herculaneum, among the unknown races of America, in the rock cities of Petra, and possibly by Tubal Cain himself, yet it was not the square that it is to-day. The men who, over 4,000 years ago, could plan the great pyramid, square it with the true astronomical points of the heavens, who knew the north star, and could fix the angle at which its light should slide into the recesses of the great monument, who could set the true meridian of that spot, and mark the hour when the sun would cross it, must have been skillful in the use of so simple an instrument as the square. So the men who planned and built the marvelous cities of Thebes and Memphis, Babylon, Athens and Corinth, and Ephesus with the Parthenon, the Temple Diana of the Ephesians, Rome and its Colosseum—all these inventive geniuses of these old days must have skillfully handled this primitive, right-angled little tool. How else could they have done such square work?

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Architectural Competitions.

NUMBER V.

The article in our August number upon the subject of architectural competitions, has stimulated considerable comment and inquiry, and we have been called upon to answer many questions suggested by our plain statements of facts—some wondering almost to doubting, whether we have not overstated the case. We answer, that we have not; but could and shall, confining ourselves within the range and limits of truthfulness, make further statements of similar character, strongly in discouragement of architectural competitions. Statements have been furnished us, which if put in print, would fill a whole volume of this journal, by no means complimentary to prominent personages into whose hands the management of competitive contests have been confided. The prevailing sentiment, that men who have gained a fair business, social, or religious reputation, are above and "cannot afford" to commit a wrong of this or any other character, is a mistake. A good reputation is a grand acquisition and attainment, but it by no means purifies and purges men from, nor fortifies them against, the weaknesses which cluster around and impregnate our poor humanity; and often the wisest and best of mankind are seduced into acts of folly or error, which serves to demonstrate the frailty and uncertainty of human virtues. While some maintain an unsullied reputation through life, and pass down to the grave with scarce a stain or blemish, by far the greater number fail to preserve unspotted robes.

The point of argument in all this is, that we have asserted that gross wrongs have been committed by parties of good general repute and standing, in connection with plan competitions; and that *severe* injustice has frequently been done by men who would resent with indignity every intimation calculated to reflect upon or call in question their unimpeachable integrity. As we have heretofore stated, such acts are not always the result of deliberate purpose, but the offspring of uncomprehended and unrealized ignorance, or the absence of a proper understanding and realization of the rights of contesting parties in competitive issues. The sentiment is too often indulged in, that an architect's work, as exemplified on paper, is an immaterial, unimportant, and uncommercial something—unentitled to more than *contingent* considerations, and subject to any disposal that the inconsiderate and unappreciative many see fit to decree. The fact that plans—however meritorious or insignificant they may be—are the result of intense study and earnest brain and hand work, to some never appears; and rude and unmerited rejection have in thousands of instances been extended, where respectful consideration and appreciation has been deserved. This is one of the pivot points of the issue upon which injustice has turned. Those who produce the least meritorious plan often toil and labor hardest, stimulated in their fruitless efforts by hopes of success; and it is but little less than cruel unkindness on the part of those seeking plans by competition to throw open the doors to all who may "be disposed to try;" for while success may bring joy to the heart of the successful, defeat sends its arrow of disappointment deep into others, causing tenfold more injury than benefit.

Competitions, as generally conducted, are but little less than practical dishonesty, and are so intended in a great many instances, however much the dishonest feature may be repudiated or denied. Not a criminal dishonesty, which if proven, would subject those guilty of it to legal punishment; but one of moral turpitude, to which no penalty attaches. We hold that every act of deception and misrepresentation, it matters not for what purpose designed, nor what excuses or coverings may be made to intervene, is dishonest in character. And when committees or persons put forth statements, and advance inducements which influence others to spend time and labor, *with in fact* not the slightest probabilities of any pay or reward in return, the act is not only condemnable, but should involve a responsibility under the laws of the State. Yet, as we have stated in previous articles upon this subject, this thing has been repeated hundreds—perhaps thousands—of times; and we shall hereafter establish our position in the matter by statements of cases which will sufficiently illustrate the correctness of the assertions made.

For in seven-tenths or more cases there is either a fixed intent on the part of "committees," or some one or more members thereof, to specially favor some certain party, or a strong preference that such party shall be the successful one; and to this end, influences are used and matters manipulated, so that failure of success shall not occur. Transparent defects and deficiencies are excused and palliated in the one case, which, appearing in others, are used as forcible arguments in condemnation and rejection. To serve purposes, the mountain is diminished to a mole-hill, or its peaks reared high into the azure skies. The forms and methods by which these things are done are numerous and diversified, and the good-meaning and upright members of generally honest committees are sometimes ensnared by the devices resorted to, to secure decisions in certain directions. If the majority of the body are untrammeled by personal favoritism, so much the better for those who from "*motives of pure friendship*" desire to serve the interests of some one preferred; but, we ask, is it less than shameful and infamous when several persons are induced to compete for a certain understood prize, upon promises that each and all shall enjoy equal chances in the contest, that any one or more of those offering the reward shall lend his or their special influence in favor of any one of the contestants? Yet this has been done in so many cases of competitions, that those familiar with the *modus operandi* adopted are prepared to question the integrity of any proposed competition offered; and thousands of architects in all parts of the United States have refused to engage in competitive contests, from well-sustained conviction that unqualified fairness is not an assured certainty.

Our purpose in these articles is to reveal the true inwardness of the competitive business, and make prominent the facts which are interwoven, to a greater or less extent, in and through nearly every case of competitions which has occurred; and the fact that such contests are intrusted to the management of "high-minded and honorable men" is never an assurance that strict fairness will be practiced. For it seldom happens that some "influential party" does not realize the advantages to be gained by a decision in favor of some special competitor; and to secure these, all possible influences are brought to bear, to effect and determine the conclusion of the "committee;" all of which is done with the avowal of "entirely disinterested motives," and the pressures brought to bear often sway and control the judgment and action of committees, who might otherwise pursue a materially different course.

The fact is beyond successful denial, that the individual rights of competitors are but seldom taken into account. There is no class of men who study more diligently, or labor more earnestly, hopefully, and incessantly, than do consistent, qualified architects, when they consent to take part in competitive issues, nor any who deserve right treatment more; and whenever a committee on competitive plans or individual owners fail to recognize these facts, they inflict a painful wrong, and impose a hardship. We speak not in behalf of the "wire-pulling," scheming tricksters, who spend their time in seeking to find and manipulate matters and influences in their favor, so that they may "win," with or without regard to the merits of their plan productions; but that more consistent, modest, and laborious class, who govern and regulate their actions by rules in harmony with the dignity and high character of the noble science of architecture. For noble and grand it is as a science, around whose base the pigmas may play and gather the fallen leaves, without being able to reach its higher branches, upon which grows and clusters the rich, ripe fruit of beautiful conceptious, consistent and harmonious deleniations, and the innumerable encompassments which demand and require a high order of intelligence to rightly comprehend and understand.

But in these days of universal personal-interest serving, of twisting, turning, palliating, and conniving for the sake of gain, doing almost anything, legal or illegal, just or unjust, which promises gold as its reward—tribute is laid upon every sacred thing. Even personal honor, truth, and integrity are placed in the balance, to be weighed down by filthy lucre; and it is because there contaminations exist so largely in connection with plan competitions, that pure-minded and honorable architects so generally refuse to join in them.

Another strong ground of objection exists in the fact, that innumerable iniquities have developed in connection with a large majority of competitive awards, bringing discredit to the architectural profession, which is generally made to carry the principal burden of all irregularities which occur. The architect is made the sacrificial "scape-goat," upon whom the sins of committees, contractors, and all others are placed; and he is sometimes, by force of circumstances, compelled to bear them quietly, and submit to the fury of the flames which demand the sacrifice.

Again, as illustrating the almost certainty of injustice, if not positive fraud and double-dealing on the part of the managing parties, is the fact, that men are sometimes made judges of plans in competition who do not enjoy the first qualification necessary to a correct and honorable determination of the merits of the plans presented for their consideration: absolute stupids in this connection, although otherwise smart and intelligent. As a case in point: a pretentious gentleman, assuming more than average intelligence, and a successful business man, acting as a competitive judge, remarked in our hearing—pointing to an elaborate gothic window placed in the front of a church edifice—"That is a beautiful *door*"; and when informed of his mistake in not being able to distinguish between a door and a window, he was reluctant to admit the error. Thousands of this kind have been made arbitors in competitions; and, we ask, wherein lies the probability of fairness, when subjected to such contingencies? There are but few men, even among the commercial business classes, who are competent to read and understand drawings of the most ordinary character, when submitted for their inspection. This is a well-known fact to all practicing architects. Successful business men often display their total incapacity to comprehend the plans for a homestead, in which they are supposed to be deeply interested, and with the appointments of which they should be familiar, occupying as they naturally must, a considerable amount of "thinking over" and discussion in the family circle. Yet frequently it is difficult for an architect to *make* some owners understand the plainest drawings. But with all this as a fact, such parties are often placed upon committees to secure "competitive designs" for halls, churches, societies, public, and State edifices. And it is safe to assert, that of gentlemen fairly and fully qualified to criticise and understand drawings for which competitions have been invited, they will not average three in ten. Consequently the majority as a rule, are controlled by the opinions of the minority; and not unfrequently *the entire* committee is resolved practically into a single member, whose single "say so" becomes the edict of the body.

Under all the circumstances related, we ask, is it not the most likely thing imaginable, that gross injustice should be practiced in connection with plan competitions? If deception, trickery, personal favoritism, and interests *divided between two or more*, does not control, equal uncertainty exists in the disqualifications and incompetencies of the managing parties.

While we have written plainly in condemnation of competitions as hitherto conducted, generally, we admit that they might be rendered feasable and unobjectionable by the adoption and observance of the following rules:

1st. That none but conscientiously correct, honest, and intelligent parties, who are capable of reading, understanding fully, and adjudging fairly, plans submitted, shall be appointed as "committeemen" to procure plans. Not men who are ostensibly so, but such in spirit and in truth, beyond the reach of all personal and corruptive influences, and able to resist all pressures beyond the dictates of honest heart and judgment. Men enjoying a *practical* or a *well-acquired* knowledge of the science of architecture and practical construction, for these are the fundamental elements involved; and it must be confessed, that men who are ignorant of the principles and theories of a proposition or fact, cannot be qualified to determine issues. As well ask an untutored herdsman, whose eyes had never scanned the pages of printed volumes, to pass judgment upon the laws of gravitation, or explain the science of astronomy. "Smart," "able," and "intelligent" men in certain things may be "very fools" in others; and the "fool" feature has often been manifestly developed in numerous competitive issues.

2nd. Every statement made by "committees" should be matured with care and judgment; every requirement cautiously prepared; and, when enunciated, scrupulously observed, to the ruling out of every plan and statement and proposition presented by contesting parties not in strict accord and compliance with the proclaimed basis of operation.

3rd. All competitions should be confined within certain limits. Any *one* qualified architect should be competent to fulfill the requirements in any case. But if competition is made the rule, then not more than three or five should be *allowed* to compete. These five or three should be selected with due regard to their acknowledged architectural capacities, and the doors closed against all others. Those selected should all receive pay for their services, with such liberal inducements as would warrant competent men to employ their time at a risk in making plans. Neither State, associations, nor individuals have a right to ask men to spend sometimes hundreds, or perhaps thousands, of dollars, in labor and expenses to work up ideas for a special purpose, without offering a fair compensation for the services rendered. One of the many evils in this connection, is the matter of premiums, which are made so insufficient in amount, that less than the larger sum named would not compensate for the plans; to obtain which induces and stimulates the many questionable methods adopted to secure the first premium. Illiberality in this and all other matters encourages and provokes a disposition to dishonesties or devices not governed by the moral law.

4th. Men of unequal architectural caliber should not be brought together in such contests. If the purpose shall be to run the competition upon the basis of cheapness, then the class most familiar with, and who are not qualified for any other than, shoddy work should alone be called in. Putting some who profess to be architects against others who creditably maintain the dignity of the profession is both absurd and unkind. The dreams of the one class are worth more than the most vivid conceptions of the other.

5th. All competitive drawings should be executed in simple lines. Not a particle of shading or coloring should be allowed of any type or character; and if committees would act wisely, they would reject all shaded or colored plans; as the skillful touches of the artist's brush has led to the adoption of plans otherwise defective, and far inferior to others upon which no deceiving tints have appeared, causing after regrets to the parties deceived, and furnishing clubs to outside parties, with which to pound and bruise the heads and shoulders of those making the mistake. It is an admitted fact, that well-shaded "beautiful plans" have more often been adopted because they "*pleased the eye*," over others infinitely better in every or a majority of practical respects, which have been submitted alone upon their intrinsic merits as plans.

(To be continued.)

How is the Expense of Building Now?

This question is asked many times daily by owners of real estate in San Francisco, who are in a measure, at least, inclined to improve their property, but hesitate upon two points: first, cost; second, will it pay? As to cost, we will answer, that through the unwise competitions existing among contractors, buildings are being erected in this city at but little more than prime cost of materials and labor, and in many instances for less amounts, footing up with losses to some one. But the expense of building at the present time is greater than it was two and three years ago, for the reason that rough lumber which then could be bought for about $13 per thousand, is now held at $21, showing an advance of $8 per thousand. Other classes of lumber have advanced correspondingly. The secret of this phase of the lumber market is, that during the former "low market" times the demand was so small that dealers were willing to let their stock go at almost any price, rather than remain entirely inactive. But during the past eighteen months, and especially the past twelve months, conditions have so materially changed, that manufacturers and dealers have returned to compensating prices, and with the advance added, are disposing of large quantities of stock.

The cost of plastering has also advanced from 20 to 25 per cent., but is still 30 per cent. less than ruling prices five years ago. At the extreme low rate of 17 and 18 cents per yard for two-coat work—one brown or float coat, and one white coat of lime putty, and plaster-paris—the quality of work was the meanest and thinest possible, with no profit to the boss plasterer. And at the present prices of 20 to 22 cents, there is no pay for good two-coat work, and an inferior quality of work is resorted to, to compensate for the low figures. Really good two-coat work cannot be executed at much short of 28 to 30 cents per yard; and owners who seek to secure their plastering done at the lesser figures effect no saving, the quantity of material used and the quality of the work done considered. Mechanics are simply unwise in breaking prices down to an extreme, at which they must resort to whittling things to a fine point, or suffer loss. Plumbing materials and labor, glass, hardware, brick-work, etc., will average now about the rates ruling during the past twelve months. Carpenters' wages are better by 50 cents per day; and taking every thing into consideration, the cost of buildings will average an advance on rates of two years ago about 15 to 20 per cent. and fully that figure less than the cost of building four and five years ago.

"Will building be cheaper?" is also asked. We answer no, unless some at present unforseen set-back comes over this city or State to diminish present prospects. Those who delay, awaiting lesser building rates, will have to wait a long while, we hope and pray. For present rates are averaging but small profits to contractors, and any breakdown on present cost of building can only be effected by calamitous conditions in general business—a something not to be coveted even by those who desire to "build cheaply."

To the California Architect and Building Review:

Mr. Editor:—In the last number of your paper, under the heading, "Better than a Lien Law," you say "a little strong and effective law-making would do more toward purifying the contracting atmosphere than all the lien laws that can be enacted." I say, give us less law. Wipe out such laws as have brought about the present condition of things. Have laws that will protect our honest contractors, not such as will injure them, by giving protection to the adventurers that crowd in from other States, and from the lands beyond the seas, who immediately upon their arrival in this city enter into successful competition, as far as estimates go, with our best and most worthy men. These strangers, being aware that a low estimate on work is the best recommendation, and that under the lien law they can use the credit of the owner, instead of their own individual credit to carry on the work, and that material and mill men are ready to go their security, if by so doing they can secure the sale of lumber or mill work; these bondsmen trusting to luck to get paid for the material furnished by themselves, and to their lawyers to get clear of responsibility in case of a deficiency of funds. If responsible contractors should insist that the lumber men and others in the building line should refuse to go security for any except good men, on penalty of withdrawal of custom, these irresponsible adventurers would find it impossible to get bondsmen, and would be obliged to take a back seat until they had established a reputation and proved themselves worthy of trust.

But to make it certain that none but responsible men could take contracts, I would wipe out from our statutes all that portion of the lien law referring to material-men or sub-contractors, and make all payments due or becoming due to the contractors, subject to attachment by any of their creditors, giving no preference to those who furnished material or labor under the contract that was attached. This would place contractors on the same footing as merchants, and would oblige them to be careful of their individual credit. This would enable good and true men to build up reputations that would be of great value to them, and would make it almost impossible for an irresponsible man to secure any contract of importance, or to seriously injure the building business by his reckless estimates. I can see no good or plausible reason why material men or sub-contractors should have special laws enacted for their benefit. Our grocers, butchers, tailors, etc., have to trust to the individual credit of their customers, or demand cash. Why not force those engaged in the building business to do the same? It seems to me that the lien law was got up for the express purpose of injuring the contracting business, and is detrimental to the best interests of all engaged in building, be it owner, contractor, material-man, or mechanic. I would retain only that portion of the law that affects the contractor and owner.

Yours respectfully,
JOHN J. NEWSON.

How a Doctor is Created.

Qu. Quid est creare? (*What is creating?*)
Ans. E nihilo facere. (*To make out of nothing.*)
Rej. Bene; te doctorem nunc creavimus. (*Very well; we now have created you a doctor.*)
—*Exchange.*

Among the great questions of the period, there is none which more deeply concerns the whole human family than those of sanitary, sanatory, and hygienic import. Issues and considerations which involve, and to a large extent jeopardize the life and health of communities and individuals, must be regarded as of vital import, justifying and demanding the most earnest and diligent effort on the part of those who comprehend the situation, the enforcement of gravities, and their inseparable connection with human life and happiness.

The interest in this connection at present is world-wide in its scope; our own country being in the lead from natural causes, brought about mainly from rapid spread and growth, and the self-reliant disposition of the masses, who—thrown upon their own resources in building up segregated homes for their families, or in planting the nucleis around which towns and cities have been constructed—naturally introduced methods and systems the more economical and simple in character, without any consideration of after consequences. Hence the privy-vault and well were generally located in near proximity, with no attention paid to the character of the stratifications existing between the two points of location, and a general violation of all rules recognized at the present time as of indispensable importance in a sanitary point of view.

The accompanying extracts from the *Sanitary Engineer* are sufficiently full of interest to warrant reproduction in our columns.

The following extract from the July report of the Health Officers of Yonkers, N. Y., shows that there is culpable neglect of sanitary supervision in that thriving little city. The officials who permit such nuisances to exist ought to be punished without mercy.

"Foul air does much toward swelling the death-rate from cholera infantum. Not infrequently we find dwelling-houses located within twenty feet of privy-vaults of the most offensive nature, without the slightest effort at ventilation. There is one very notable example of this kind of vault in the first ward, where a monster privy-vault is situated in a filthy yard, surrounded on every side by dwelling-houses, some of which are unfit for habitation, and are a standing disgrace to the city. This huge vault is constantly receiving the excrement of about 100 people, and the well which supplies those persons with water is located only twenty-five feet from this foul receptacle."

The Brooklyn master-plumbers contemplate calling a meeting to discuss the new law passed by the State Legislature conferring supervisory powers on the Board of Health in the matter of plumbing and drainage. Dr. Hammond, Sanitary Superintendent, says that every decent plumber would appreciate the new law. The only people who dislike it are builders of pasteboard houses, and plumbers who do cheap and unsatisfactory work.—*N. Y. Herald.*

This, we believe, is the conviction of competent plumbers, whose willingness to do honest work will be freed from dishonest competition by the intelligent enforcement of the new law. In this connection, we will quote from an address recently delivered to working plumbers of London, by S. S. Hellyer, in which he said that the "trade was injured by a class of men who assumed to be plumbers, painters, glaziers, paperhangers, bell-hangers, and tin-plate workers, and every other trade, and it was difficult to say who or what was a plumber."

He contended that no man should be entitled to call himself a plumber until he understood the art of plumbing, and he would insist upon every man being licensed before being able to write sanitary engineer on his board or doorplate; and before this, he should pass an examination before authorized examiners.

"There is no trade so important as plumbing. The medical man was now fully alive to the value of house sanitation, and when he had reason to believe that his patient was suffering from a complaint attributed to bad drainage, he at once called upon the head of the house to set the drains in order: and the plumber should be equal to the occasion. A badly ventilated waste-pipe, or a drain ventilating itself into a house through the service-pipe, a drinking fountain badly placed, or with any connection with the water-closet, was quite sufficient to make a house unfit for occupation. Now, when any one was allowed to set himself up for a sanitary engineer, regardless of any competency for it, how were the public to know the skilled man from the unskilled and unqualified man? There was no means of testing his knowledge or qualification."

The *Italian Times*, of Rome, Italy, has instituted a movement of great value to tourists to that city, namely, a sanitary inspection of the hotels. In this work, the paper has secured the co-operation of the hotel proprietors themselves, some of whom have requested inspection made, and engaged to carry out any improvement which the inspection commission may recommend. This commission consists of some of the leading physicians of Rome, assisted by a practical sanitary engineer.

We have several times advocated in this journal the adoption of a sound, practical plumbing inspection law, which would weed and crowd out the hoard of pretenders who claim to be practical plumbers, but who play upon the "practical" string, because there is none to attune its music in accord with the pure strains of scientific plumbing harmonies. The people of no city on earth have been more imposed upon than those of San Francisco, by men assuming qualifications not possessed; resulting in the corruption and debasement of innumerable mechanical interests. New York, Chicago, and other places have passed such laws, and so long as they are maintained free from political contamination, they are sure to work beneficially to the people of the several communities. The New York law provides the following certificates, which, in force in San Francisco, would rule out many who practice as practical master and journeyman plumbers:

HEALTH DEPARTMENT,
NEW YORK,.....188

Registration of Journeyman Plumber.

Under Chapter 450, Laws of 1881, and in compliance with the rules and regulations which have been established by the Board of Health, I,.....a journeyman plumber, residing at No.....Street, do hereby register and make the following statement:

That I am.....years of age, and served an apprenticeship of.....years with..... in the city of.....; that I have worked as a journeyman.....years, and am now employed by.....doing business at..... .....Street. And I hereby agree to comply with the rules and regulations that are and shall from time to time be established by the said Board of Health.

(Signature).....

HEALTH DEPARTMENT,
NEW YORK,.....188

Registration of Master Plumber.

Under Chapter 450, Laws of 1881, and in compliance with the rules and regulations which have been established by the Board of Health, I,.....a master plumber, residing at No.....Street, and carrying on business at No.....Street, do hereby register and make the following statement:

That I am.....years of age, and served an apprenticeship of.....years with..... in the city of.....; that I worked as a journeyman.....years, and have carried on the business of a master plumber.....years. And I agree to comply with the rules and regulations that are and shall from time to time be established by the said Board of Health.

(Signature).....

In his annual statement, Dr. Sykes of Mexborough, England, says that a considerable outbreak of typhoid fever occurred in June, 1880, from the pollution of the water supply and the filthy state of the privies. In a group of thirty cottages, there were no less than forty-five cases, two of which were fatal. Dr. Sykes adds, that "in too many instances at Mexborough, as elsewhere, the builders of houses have proceeded on the principle of digging two holes in the back yard, within a few feet of each other, one of which they call a well, and drink out of it, the other use as a receptacle for fæcal and liquid matter, and call it a privy; never considering that the liquid contents of the latter drain into the former, and change what should be pure water into nauseous poison."

Sanitary Items.

The cry of warning seems to come from all parts of the United States and Europe, in reference to defective plumbing work and imperfect sewerage. In this connection, the "White House" at Washington, the capitol of our country, and dwelling-place of the chief magistrate of the nation, has become conspicuous. The illness of Mrs. Garfield during the spring months is attributed, in a large degree, if not entirely, to malarious causes occurring from the imperfect condition of the plumbing work of the building. And our beloved President has also been made a greater sufferer from the same cause. It is not impossible but that the blood taint, from which he has suffered so much, was greatly aggravated by the contaminated atmosphere of the building, caused by the distribution of the poisonous vapors through the appartments.

If this condition of things exists in one of our national buildings, where economies in cost are not considered in the execution of the plumbing or other works, what must be the state of things generally in dwelling-houses throughout the land, in ninety-five one hundredths of which cheapness and economy of expenditure controls every department of construction. Cheap, i. e. low-cost, plumbing means nothing more nor less than defective work. And when the masses realize the truth of what we have so often repeated in this journal—that thousands are yearly consigned to untimely graves through imperfect plumbing—they will begin to apply the advice so frequently volunteered by sanitary journals, and intrust their work only to those familiar with the correct science of plumbing, and who possess the integrity to perform work with a full appreciation of the serious involvements associated with this department of mechanical operations. Owners who act wisely will observe as much care and caution in the selection of a man to plumb their dwelling-places as they practice in the choice of a physician. From no one cause, not even personal uncleanliness, have doctors profited more than from the results of bad plumbing work.

Railroad car-wheels are now kept in their place without being keyed on. In former times they were almost sure to precipitate an accident; besides, keys would drop out by the constant jar, and be weakened by the axle and wheel. Axles are turned to fit the wheel snugly, and are driven in place by hydraulic pressure. Previous to being driven, the axles are covered with a thin coat of white lead and oil, which hardens in a short time and holds the wheel so firmly in place that a pressure of from 100 to 140 tons is required to remove a broken axle from the wheel in which it is placed.—*The Leffel Mechanical News.*

Pneumatic Clocks.

A CALIFORNIAN INVENTION.

With the fast railroad traveling, and the telegraphic connections and quick communications between distant points, space seems to have been shortened and time become more valuable, so that the old style of time-keepers or clocks, of which every one goes its own way, but never two alike, would not keep up with the time; in fact, correct and uniform time over a whole city, or in the departments of large establishments and institutions, such as railroad and ferry depots, hotels, large manufacturing concerns, schools, first-class private residences, etc., have become to be a necessity, and many means have been tried to accomplish the desired end.

We feel glad to state that it had been reserved for California to put into operation the most valuable invention, and at the same time the most simple and unfailing means of obtaining uniformity in the registration of time, ever suggested.

The inventor and patentee of this wonderful system of indicating time at different places, by means of one standard regulation, is Hermann J. Wenzel of San Francisco, and his motive power for the subsidiary clock-faces is the inexhaustible one of air.

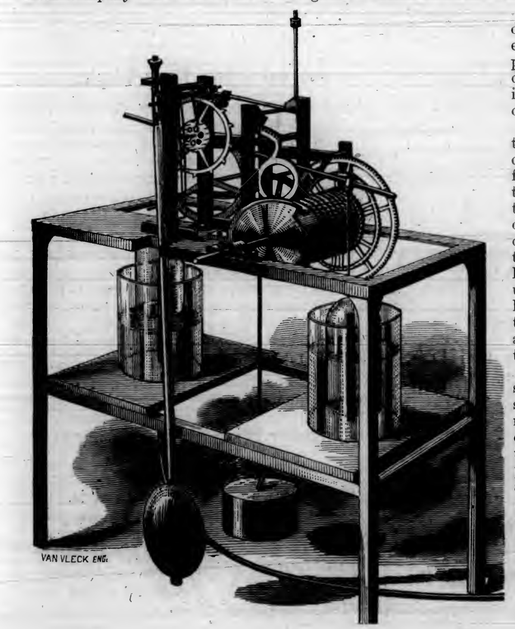
Before we give a description of this invention, we would like to enter our protest against the statements of European and Eastern scientific journals and daily press, some of which have lately given a lengthy description of the Pneumatic Clock System in Paris, where it has been introduced since 1879, and where it is claimed as a late invention; and even some of our local papers have copied it, without mentioning that this invention is a genuine California one, and has been introduced here since 1873; and up to this time, in all the most prominent buildings and private residences, more than a thousand clocks have been in operation, and given everywhere the best satisfaction. It has been introduced in some of the department buildings in Washington, and the Pneumatic Clock Company of New York has been organized and working under Wenzel's patents.

Mr. Wenzel desires us to state distinctly that the clocks in the east wing of the new City Hall are electrical clocks, and not made by him or his system, and therefore he is not responsible for their reputation. He has furnished the west wing (Mayor's office, street department, etc.) with air clocks, and if any one of them should be out of time, he would like to be notified of the fact.

The air-clock system is very simple in its operation. One of our cuts represents a glass dial, showing air-pumps and simple dial movement; the other, the regulator or standard clock, made to operate any desired number of clock-dials.

Such a regulator, of perfect construction, and run by a weight, is set up in any convenient place of the building. A very simple air-pump is attached, consisting of two inverted glass cups, or cylinders, suspended on a lever, and moving every other minute up and down into glass jars, partially filled with glycerine, which will not freeze nor evaporate. A small pipe runs through the jars, one end reaching above the liquid. The other end is conducted and branched off to the different clocks in the building. The clocks so connected contain only dial-works and small air-pumps.

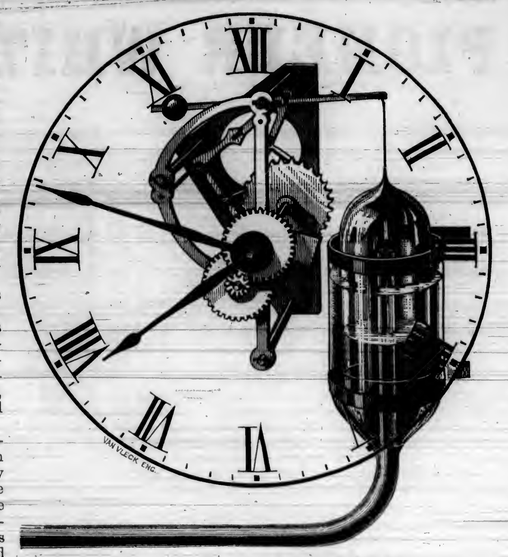
When the cylinder on the main clock is depressed into the liquid (which serves as an air-tight packing), the air is compressed, and by compression through the pipes causes the small cylinders in all the clocks to rise and start the hands a minute ahead.



The next minute the cylinder on the main clock is raised out of the liquid, and the pressure on the small cylinders released, and in descending will start the hands another minute ahead.

By lifting the cylinder on the main clock above the liquid, the air in the pipes is set free, and any expansion or contraction is neutralized, so that the pumping of the air is reduced to a simple mechanical operation, which, by its positive action, will move the hands on all the clocks simultaneously, and consequently they will each and all show the correct regulator time, and require no further attention whatever.

The connecting pipes are similar to gas-pipes; but of smaller diameter, ¼ inch for mains, and ⅛ inch for branches. They should be laid in the building before lathing or plastering is commenced, so as to have them covered the same as gaspipes. They are subjected to a thorough and searching test before being covered up. Regulators and clocks in operation can be seen at the inventor's office, 328 Kearny street, San Francisco.



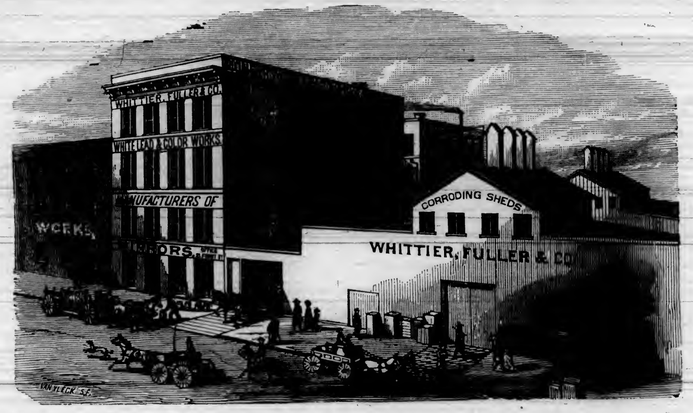
Learning a Trade.

Referring to the recent inauguration of a class in the science of plumbing, under the auspices of the Metropolitan Museum of Art, New York, a correspondent of the Philadelphia *Record* says: "If this will diminish the number of young men whose highest ambition seems to be to stand behind the counter and wear good clothes, it will be a public benefaction. There's a great deal of money in trades, and very little in counter-jumping; and yet only one young man in a hundred is willing to blacken his hands with tools. It is not always the boy's fault, however. A gentleman of my acquaintance, who is a broker in Exchange place, said to me recently: 'I ought to have been a machinist; I would have been rich by this time. When I was a boy, I wanted to go into the Allaire Works, but my father was afraid it would soil my hands. He wanted me to be a gentleman. The result is, that I have never liked my business, and never made more than a living at it. Had he let me go in as an apprentice, in the machinist trade, I would have been building engines and coining money by this time, and my whole heart would have been in it.' The fathers of to-day in New York are the same. They would almost as soon bury their sons as to make them apprentices. The result is a race of mediocre clerks and book-keepers, who part their hair in the middle, smoke cigarettes of paper, and find their intellectual level in the flash newspapers of the day.—*The Mechanic.*

Recently a Philadelphia pressed brick, intended for the city hall in that city, was subjected to a compression test in the powerful hydraulic press, at the Watertown arsenal, and stood the test of 500,000 pounds, remaining between the plates full five minutes. From appearances, the pressure could have been increased another 100,000 without affecting it. This speaks well for the manufacturers of pressed bricks.

THE demand for bound volumes of this journal for 1880 has been such that we have had 500 additional copies bound, which we will send to any address at the reduced price of $2.00 per volume.

PIONEER WHITE LEAD WORKS.



What is required to institute and carry to a success a manufacturing enterprise? Nature is generous with her gifts; but she forces man to the exercise of his endowments, to develop them, and give the substance a form for his appreciation and enjoyment.

The very many natural resources of this Coast are marvelous, and they impress all thinking visitors with the conviction of a great future. With but few exceptions, these wondrous gifts of Nature are at present but mere curiosities, and are spoken of and written of only as such—with prosy theories on their practical value if utilized.

To the business man, scientist, or to the practical thinker who comes amongst us, it is a matter of surprise that our people, with their wealth, do not develop these resources, and build up our coast with a working and useful population, instead of pursuing the selfish course they are now, which is that of the usurer.

Our capitalists and business men are blind to their own interests, in not interesting themselves in the establishment of manufacturing enterprises, which will secure for them a certainty of fair returns for their encouragement.

The people of this Coast cannot afford to let existing opportunities lie idle, *as a dependency on foreign sources means our impoverishment. Manufacturing guarantees the reverse, as it furnishes employment to, and retains among us, consumers,* that vital quantity in a progressive and permanent prosperity.

We have much pleasure, however, in being able to refer to some notable exceptions to the general apathy of our business and moneyed men.

Heading this article will be seen an illustration of the results of the energy and public spirit of one of the leading and pioneer mercantile firms on the Pacific Coast.

Messrs. Whittier, Fuller & Co. several years since commenced the manufacture of White Lead in this city.

They purchased ground on Fremont street, between Howard and Folsom, covering a surface of 137 6-12x275 feet, and thereon erected factories and sheds, for the purposes of the business.

Their whole works, machinery, and appliances, are on the most approved plans, and excel in detail and completeness those of any other White Lead factory in the world.

This is essentially a *home institution, from the ground through to the finished product of their mills.*

Few can realize the importance to the whole community of this enterprise.

In the first place, it encourages the development of our mines, as all the pig lead used is the production of our own coast.

It thus gives the Miners employment.

As all lead ores have to be smelted to get the metal,

It thus gives the Smelters employment.

The transportation from the producing points invokes aid of the carriers:

It thus gives Teamsters and Transportation Companies employment.

A very large quantity of oil is used in the grinding of the lead. All this oil is crushed from seed raised in this State.

It thus employs the Farmers.

All the pots used in corroding-sheds are made here.

It thus gives employment to the Potteries.

The maintaining of a factory requires the services of machinists, millwrights, and laborers:

It thus gives employment to an Army of Operatives.

And in fact, everything in and about the works is of home manufacture. *Now, what does the employment of the many branches of industry hereinbefore enumerated demonstrate?* This fact: that as they are *all consumers,* their wants *engage every business* on the Coast to supply them.

The product of the

Pioneer White Lead Works

Is not excelled by any other make in the world. It is guaranteed *strictly pure; it is white, very finely ground,* and has *superior body* and *covering properties.*

The manufacturers announce their determination to always offer it to consumers at less prices than any imported brands.

As against the imported, there would be great economy in its use, even at equal prices. All painters know that White Lead that has been packed any considerable time loses a great deal of its vitality, in the absorption by the kegs of a considerable quantity of the oil; leaving a hard mass in the keg, involving time and expense in its extraction and working up for use, and a costly addition of oil.

The Pioneer being all freshly packed,

all this expense is avoided.

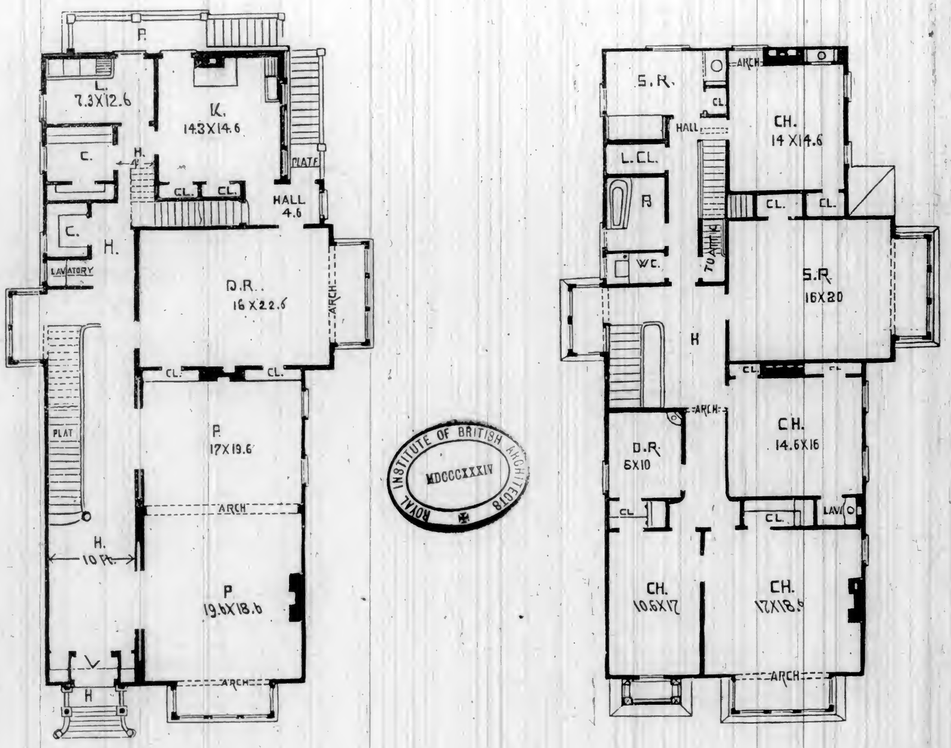
We know what the White Lead is, and we have no hesitation—in fact we take pleasure—in recommending our brother architects to write it in their specifications and to *insist on its use: first, on the score of quality; second, economy; third, the general benefit to all of us.*

PLATE No. 1. THE "HOLBROOK BLOCK," CORNER MARKET AND BEALE STREETS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

PLATE No. 2.

DESIGN FOR A CITY RESIDENCE.—WOLFE & SON, ARCHITECTS.

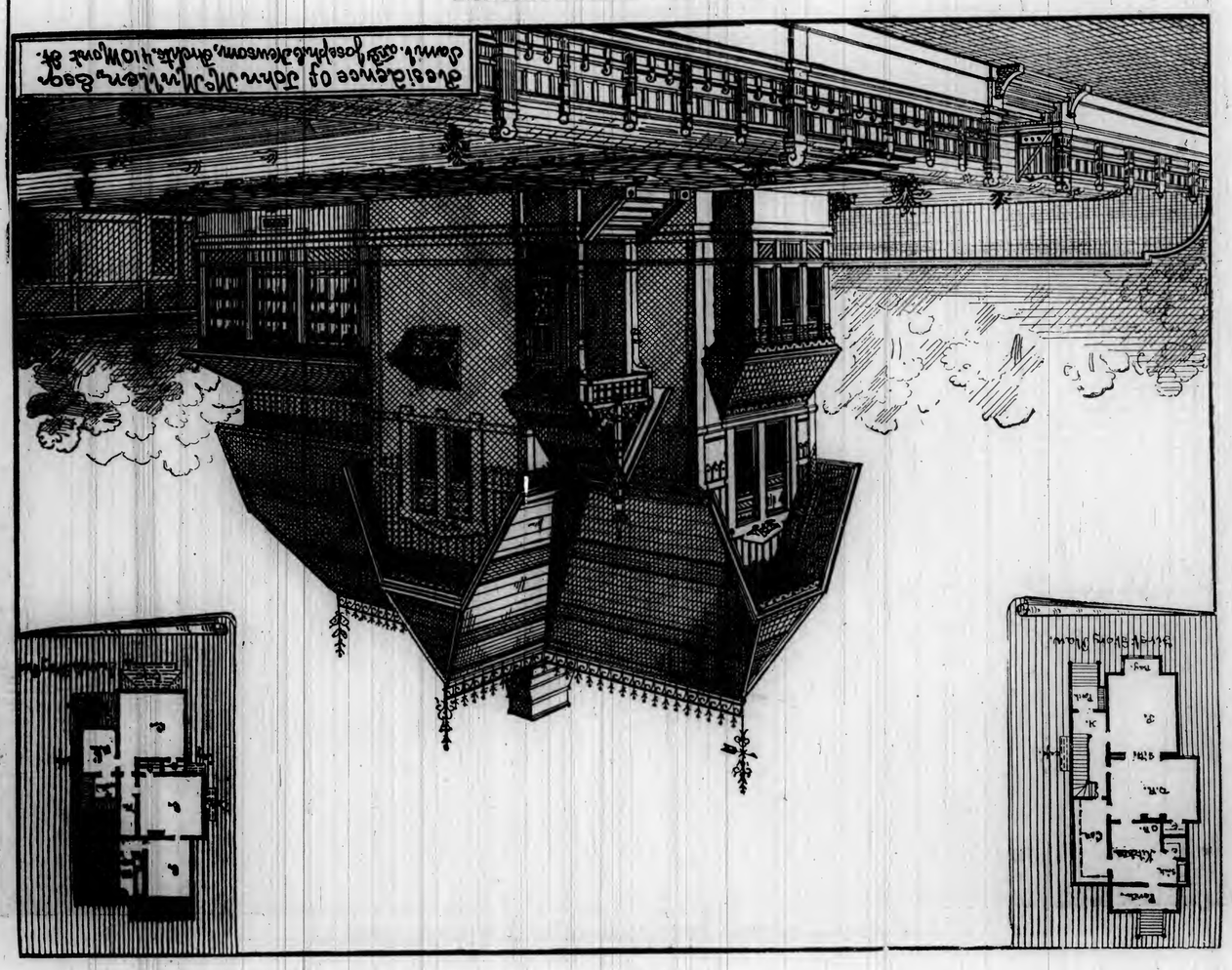


ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

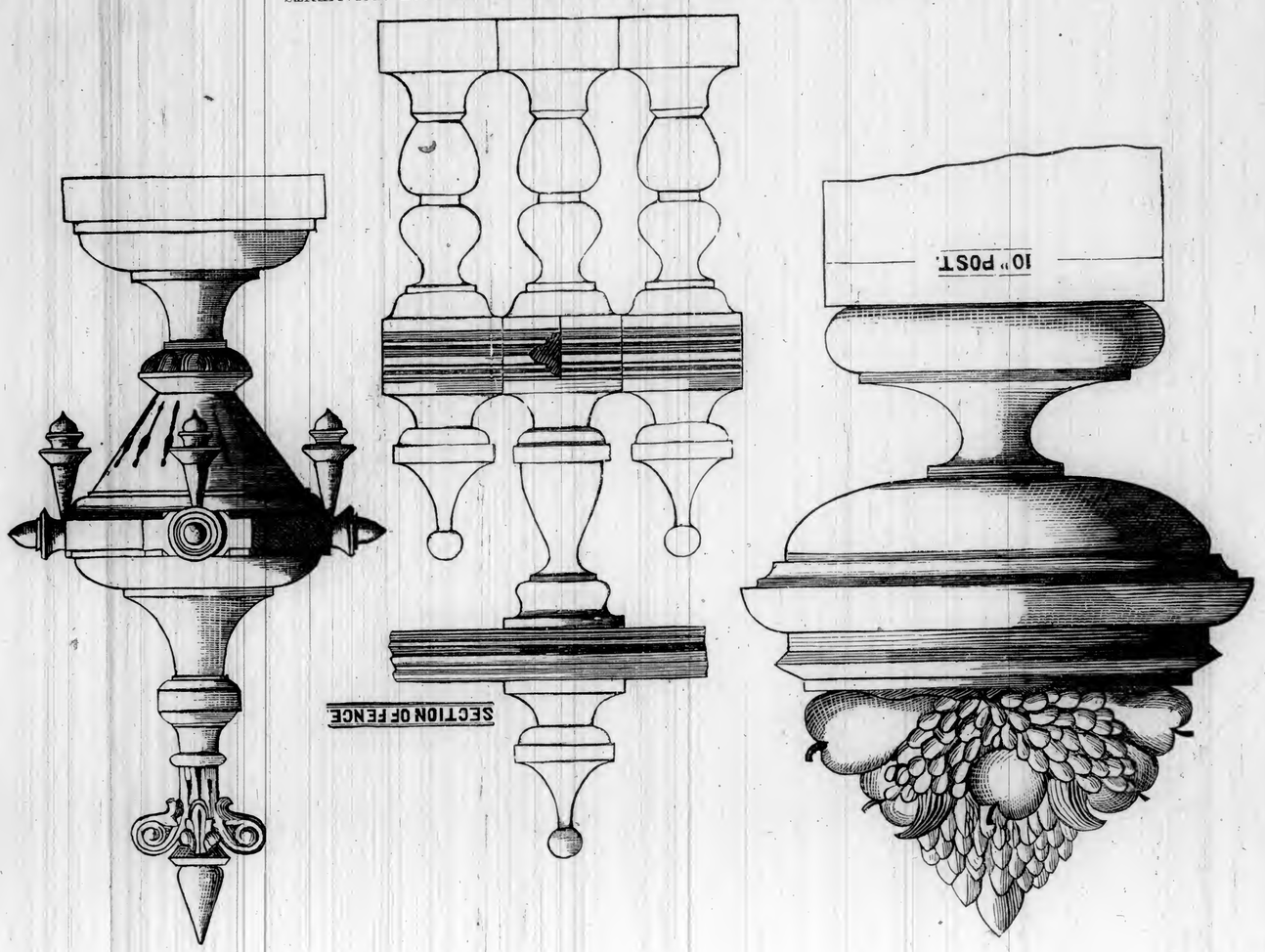
PLATE No. 3.

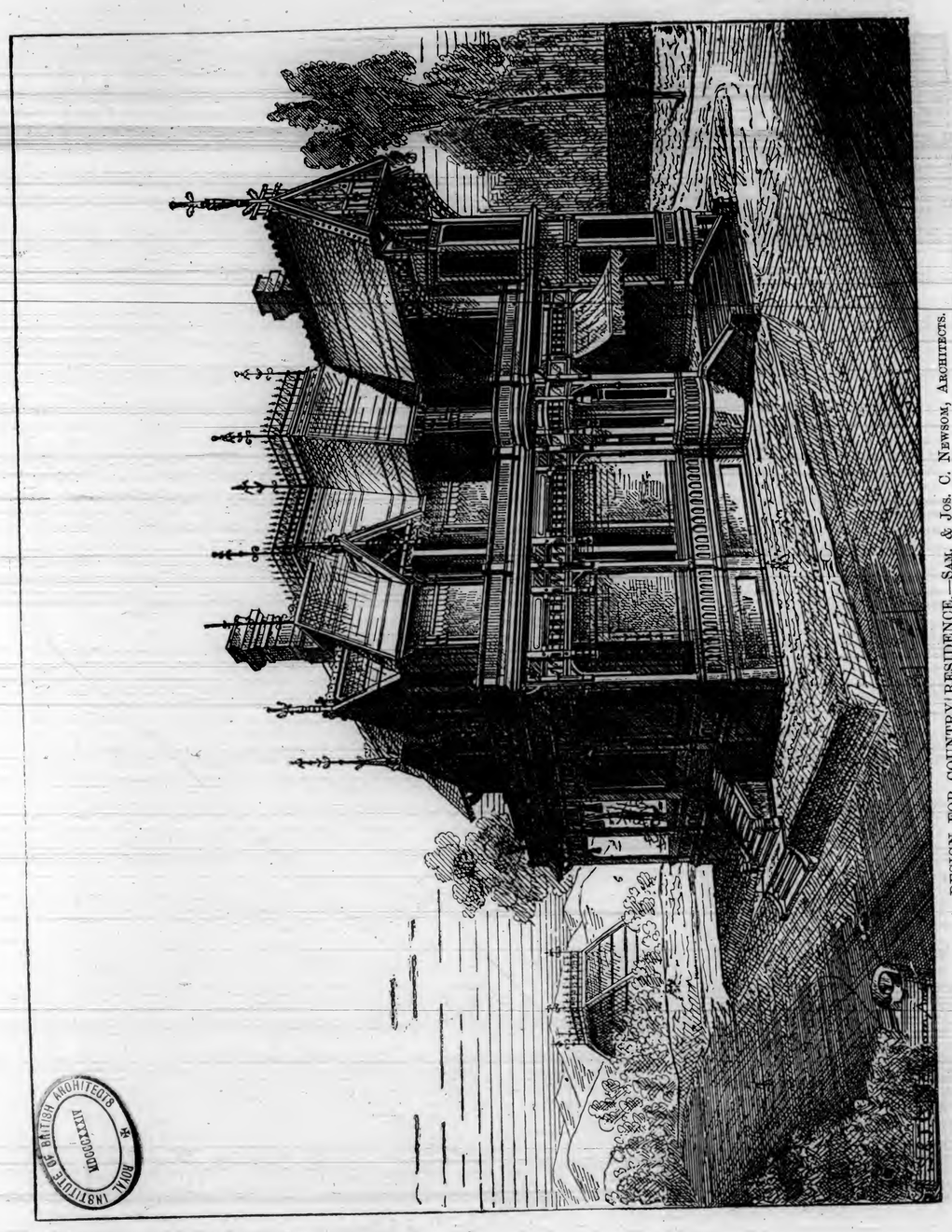
FLOOR PLANS FOR CITY RESIDENCE.

DESIGN FOR A COUNTRY RESIDENCE.



ORIGINAL DESIGNS FOR CHEAP ORNAMENTAL FENCE AND POST ORNAMENTS.





DESIGN FOR COUNTRY RESIDENCE.—SAM. & JOS. C. NEWSOM, ARCHITECTS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIII

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

BUSINESS MANAGER OF ARCHITECT:—I have examined thoroughly all the mechanical works in our library, but fail to find one from which I can get practical information in regard to filing saws properly. Will you send me any work you have on the subject, or else give me some practical suggestions through your valuable "Everybody's Column"? Yours truly,

R. F. B., Sacramento.

ANS.—We have from time to time published in this journal practical information regarding the proper method of filing saws. The following ideas by A. A. F., of Byesville, Ohio, are the best we have read, and we publish them for the benefit of all mechanics who want their saws in proper trim:

"Having properly placed the saw in the clamps and jointed it, as described in my last letter, all is now ready for filing. I always begin at the point end of the saw. A great secret of success is, to have the teeth all of an even length and size when done. Suppose the saw was in very bad shape before jointing, some of the teeth would have been reduced by that operation nearly one-half their length, while others very near them will have been barely touched by the jointer. Every tooth will show a glazed or bright glossy spot on the top or point. This spot must be distinctly seen and closely watched as the filing progresses, for as soon as it is lost sight of, the filing becomes guess-work, and altogether an uncertainty. The light often reaches the saw from such a direction that the eye has to be placed over and at one end of the saw, in order to see the bright points spoken of. Suppose the first dozen teeth are equal in size on both sides. Begin by holding the file at an angle of about 45 degrees with the side of the saw. Drop the handle to an angle of about 20 or 30 degrees below the level. Hold the file firmly, but not in a cramped manner. File between every other pair of teeth, letting the file cut about equally the back of the one and the front of the other, until about one-third of the glazed point upon the teeth disappears. When this is accomplished with one pair, move the next, and so on. When a tooth is encountered that shows a larger glazed point than the one next opposite, let the file do all, or nearly all, of its cutting against it. It makes no difference which side of the file the tooth may be, but do not try to file any tooth up to a finished point the first time across it. After going over the saw in this manner, turn it and clamp it, end for end, in the vise; begin again at the point, and go over the second side in like manner, but do not yet try to finish any teeth. Reverse the saw again, and again go over the first side. This time, the row of teeth that is set from the operator are the ones to be particularly watched. File them until the bright point disappears, but not a single stroke more. Bear the file slightly toward the one tooth that is being particularly watched, so as to do most of the cutting upon it. After going over the saw in this manner for three or four times, again turn it in the vise and go over the second side in the same manner. Watch closely for the glazed points. Some teeth will want just a little brushing from the file, some may not want touching at all, while others will probably require several strokes to bring them to a sharp point. None of them should be filed in the least after the glazed spot has disappeared. This is the operator's only guide in keeping the teeth of an even length. When a saw is in very bad shape, I have often jointed it right over again, after filing as above described, and then repeated the operation. It is difficult to get the teeth all of an equal length and size at one filing, particularly if they are quite uneven. After taking the saw from the clamp, it is well to lay it flat on the bench and run an oil stone over each side, to take off the feather edge from the teeth. I never used a file for this purpose, for I think it is liable to cut off too much.

"The cause of saw-teeth becoming shorter on one side than on the other is, that they are filed up to a point the first time going over them; then, when the saw is turned, the file is allowed to bear on both its sides. The result is, it cuts off the front side of the tooth that was brought up to a point from the back, and thereby makes it too short. If this tooth had not been brought up to a point the first time, it would not be injured in going over it in this manner.

"In conclusion, I will say that to keep a saw in the best order, it must be filed little and often. Always keep the saw keen and sharp. A little brushing up once a day, that will not take over five minutes, is much better than filing it once in three days, or once a week, consuming half an hour at the operation. A saw should cut, not tear, its way through the wood."

BUSINESS MANAGER OF ARCHITECT:—What is the most effective way of using India-rubber so as to thoroughly remove pencil marks?

AMATEUR.

ANS.—In using India-rubber, it is better to rub in the *direction of the lines* rather than *across them*; and when there is much lead upon the paper, it is better that the friction should be rapid and light, than slow and hard. The rubbing should not be backward and forward, by which the lead rubbed off by one stroke is rubbed on again by the next; but the action should be like planing or filing, namely, in one direction, the rubber being raised in the backward motion.

BUSINESS MANAGER OF ARCHITECT:—In reading of the construction of a bridge, I noticed that the piers were built on a *bed of béton*. What is *béton?*

S. R.

ANS.—A kind of concrete, which, owing to its composition, has the property of hardening under water.

BUSINESS MANAGER OF ARCHITECT:—Will you please give me a recipe for making red ink to use on rubber stamps?

N. M. J.

ANS.—Dissolve a sufficient quantity of good fuchsine (aniline red) by trituration in warm glycerine.

TO REMOVE RUSTED JOINTS AND NUTS.—Kerosene oil or naptha, or even turpentine, will in a short time penetrate between minute crevices in joints that have been long in contact, whether bolts, or nuts, or steam joints. They should be ignited when possible, when the effects of heat and diffusion will soon loosen the metals. Nuts rust so tight sometimes that no wrench will remove them without breaking off the bolts. A gentle hammering on the sides and top will sometimes start them a little. A driven joint, or rust joint, between flanges, formed by cast-iron borings and sal ammoniac in solution in them, cannot be parted by any means short of destroying the casting. The scrap heap is the only remedy.

GLASS floorings are now being made in France, the upper surface being molded in diamonds.

PAINT FOR FIRE-BRICK.—There should be nothing very difficult in making a mixture of mineral pigments which will closely imitate brick-red. The work of renovating brick fronts is usually confined to a few painters, who make it a specialty. It requires substantial scaffolding and other special paraphernalia which the general run of painters do not have. Those who undertake this class of work make something of a secret of their particular mixture; but a little experimenting with small quantities of common red pigments will enable any intelligent person to strike the proper shade, which, on drying, will most closely approximate to the desired brick color. In the preparation of the pigment for use, the same method would be followed as in case of any paint for out-door work. A mixture of Venetian red and brick-dust in suitable proportions in oil will probably come very close to the mineral used by house painters for this purpose.—*Manufacturer and Builder.*

REPORTED LITERARY DISCOVERY.—An important and hitherto unknown treatise by Copernicus, on the movements of the celestial bodies, has been discovered in the archives of the astronomical observatory at Stockholm. This treatise is said to fill a very valuable place among the writings of the great astronomer. There is no doubt as to its genuineness, as it is soon to be published and given to the world.

PAPER plates, as well as paper napkins, are in vogue in Berlin restaurants. Each plate is used but once, of course.

Our Illustrations.

Plate 1 represents the "*Holbrook Block*," southeast corner of Market and Beale streets. It is, admittedly, one of the finest business structures in San Francisco, covering a full 50 vara lot (137′ 6″ x 137′ 6″). The entire building is occupied by Holbrook, Merril & Stetson, importers and jobbers in stoves and metals, and manufacturers of tinware, except the first three stories of the easterly store, which is occupied by J. R. Kelly & Co. The site occupied by this building was, in the "early days" of San Francisco, the highway for vessels and steamers, with considerable depth of water. The "filling in" is sand, and furnishes a good foundation for even so large a building as that represented. The foundation consists of several thicknesses of planking, laid *below* low-water level, and covering the entire lot.

Plates 2 and 3 represent the residence situated on the southeast corner of Franklin and Gough streets. The plans explain themselves. The frontage of the building is 30′ 6″ with 3′ 6″ additional at the break on south side, besides the bay windows. Total depth 75 feet, with the bay windows additional. The details of the structure are but poorly represented by the cut, which fails to bring out more than a general idea of the building, while in fact its deliniations and proportions will compare in execution with any building of similar class in San Francisco. The exact cost is uncertain, as much of the work was by day labor, and more than ordinary expense incurred in bulk-heads, etc. $15,000 is perhaps a near approximate of total expense.

Plate 4 shows two original designs for portico, balcony, and post ornaments; the fruit example being used on the portico of the above mentioned residence. Also a design for front fence. The long and short pickets or sections are sawn out of lumber of any desired thickness, from 7–8 to 2 inches, leaving both face surfaces flat, and binding the whole together by rails on the inside, and a molding along the faces.

Plates 5 and 6 are designs for picturesque cottages in the Eastlake style.

The History of Fireproof Safes.

In regard to the invention of fireproof safes in America, the accounts we have are conflicting. It is said, that something over fifty years ago the discovery was made by a mechanic who attempted to boil water in a kettle that was covered with plaster of Paris. He found that it was almost impossible to heat the water to a boiling point, and concluded that plaster of Paris, therefore, was a great non-conducter of heat. In relating his experience to several, there probably was among them some one who conceived the idea of applying it to fireproof safes. After this discovery, little, if anything, was used in this country for filling safes but plaster for about twenty-five or thirty years. This substance for filling kept its place until about fifteen years ago, when it was generally given up. The reason for abandoning the use of plaster is thus given: It was used, not in its dry state, but mingled with water, and allowed to set after being poured in between the casings. This filling, it was found, attracted moisture from the atmosphere, and either produced oxidation of the metal in contact, or formed sulphuric acid, of strength enough to corrode the iron. It is not an uncommon thing to find old safes that were filled in this way, with holes eaten through their panels. When it became apparent that the set plaster was corroding the metal, it was thought that dry plaster might do; but, though a poor conductor of heat, it was found defective in having no water to give off, and alum, which contained a large percentage of water, was mixed with it, and found to answer the purpose very well.

Some twenty years ago, before the use of plaster as a filling was abandoned, the use of hydraulics and other cements was commenced. The cement was simply mixed with water and put in to set in the same way as plaster. The property of absorbing water varies with the different kinds of cement, but that variety which absorbs the most water is obviously the best fitted for filling purposes. Some kinds of cement will absorb one-third to one-half their volume of water, while there is a kind used which, it is said, will absorb an equal volume of water; that is, a barrel of cement will absorb a barrel of water. Cement, at the present time, seems to be the favorite filling with most safe-makers, and it is found not to corrode the iron, on account of the alkali which is in it, which has a preservative tendency on that metal. Pure cement is used by the best safe-makers, though it is said some mix in sand which injures the filling, and destroys, to an extent, its non-conducting properties. Asbestos has been used, but was found to be not a good non-conductor, and was soon abandoned.

About twenty years ago a Boston man took out a patent to line safe doors and flanges with soapstone, but in practice it was found that, in a long-continued fire, the soapstone heated to a very high temperature and retained its heat, so that it in turn was abandoned. In 1860 a patent was taken out for the attachment of the plaster filling to plates suspended between the walls, so that in shrinking, its diminished size will not permit its falling from its place; patents were also taken out for the use, for filling, of pure alumina; and also for the same purpose, of sulphate of iron mixed with plaster of Paris. In 1863 the following patents were taken out: For the construction of a safe with two air and steam-tight casings, one within the other, and with the intermediate spaces filled in with material capable of generating steam under high heat, the latter melting fusible plugs in the outer casing to permit the exit of the steam; also for the use of filling made of plaster of Paris set with a solution of starch; also for a filling formed of a compound of calcined and powered gypsum and alum in pieces imbedded in the plaster in such relative proportions that the water of crystallization in the alum evolved by heat shall set the plaster (this was the alum safe already alluded to); also for the furnishing of the filling with cavities to prevent the rupture of the parts from the expansion of moisture by freezing. In 1864 a patent was taken out for a filling of alum in small lumps rolled in plaster and then imbedded in dry clay. In 1865 a filling of epsom salts, either alone or combined with sulphate of lime, was obtained.—*Boston Herald.*

Do it Well.

It is not, after all, so much what a man does as how he does it. He may be a good mechanic at sawing wood, and as such deserve credit. There is a scientific way to shovel gravel that brings about the best results with the least expenditure of energy. Whatever honest occupation a man may, from choice or necessity, engage in, he deserves credit in proportion as he does his work well. It doubtless calls for different talent to do some things than it does to do others; but any man who succeeds in getting to the head in one vocation, has demonstrated a probability that he may succeed in another. He has at least earned the right to try. He has shown that he has one of the qualities necessary to success in any direction; viz., the quality of doing well what he is able to do. One of the gravest and commonest mistakes of the young man is the idea that what he is engaged in is not worth doing well. That idea well stuck to will beat any man, young or old. No one gains a right for higher work except by the way of present duty well done. We have known boys, every way qualified to become good mechanics, go through an apprenticeship and scarcely know more at the end that at the beginning, simply because they were always going to do *some other job* well. The present is the one every time. Demonstrate your ability to do *something* well, and the opportunity to advance will not be wanting. No man ever rose to respectable distinction in any other way.—*American Machinist.*

Lime as a Preservative of Wood.

The method of preserving wood by the application of lime is said to be found to work well. The plan is to pile the planks in a tank, and to put over all a layer of quicklime, which is gradually slacked with water. Timber for mines requires about a week, to be thoroughly impregnated, and other wood more or less time, according to its thickness. The material, it is stated, acquires remarkable consistency and hardness on being subjected to this simple process, and the assertion is made that it will never rot. Beech-wood prepared in this way for hammers and other tools for iron works, is found to acquire the hardness of oak, without parting with any of its well-known elasticity or toughness, and it also lasts longer.

The above statement, which we notice in a number of the technical papers, is apparently worthy of some consideration, as it is confirmatory of numerous statements to the same effect that we have met elsewhere. The plan is exceedingly simple, requiring no special apparatus to carry out, and has the merit of being cheap. It has long been known that wood set in mortar is preserved against decay, and it is somewhat singular that no systematic attempts to utilize this knowledge have yet been made. One of the naval journals not long ago contained the statement that some forty years ago a coasting schooner, built of unseasoned Maine timber, and loaded with lime, went ashore and bilged. This vessel was raised some time afterward, and is still in service. Vessels employed in carrying lime, the same journal remarks, will last longer than others.

The most interesting case in point, however, is made out by a writer in the now discontinued London *Mechanics' Magazine.* It relates the history of a platform of nine planks used for mixing mortar. It had been used for this purpose by father, son, and grandson, and finally, being no longer needed, was suffered to remain on the ground, and became overgrown with grass; but after a period of over sixty years the planks were again brought to light, and were found to be still in a state of perfect preservation.

The method given above appears to be especially adapted for wood employed for architectural and other special uses, where the methods of impregnation with creosote and metallic salts would be objectionable.—*The Druggists' Circular and Chemical Gazette.*

Building Notes.

At least three hundred buildings—great and small—are now in process of construction at Peoria, Ill.

The scarcity of brick in Springfield, Ill., is seriously interfering with the progress of the building boom. The demand is so great that manufacturers have great difficulty in filling all their orders.

The building furore shows, in New York, no signs of abatement. All kinds of houses are being projected. The greatest opera house known to this continent is one, while immense buildings for offices, stores, warehouses, as well as great apartment flats, are under way.

There is no marked change in the line of building operations in Chicago at present. Activity is noted on all sides. The advance in the cost of building materials, while it has deterred some from buying lots, and rather turned their attention towards improved property, has by no means put a stop, and hardly a check, to building operations throughout the city.

We do not think there is another city in the country which has so many enterprises under way and in contemplation as Pittsburg has at the present time. These enterprises include iron, steel, glass, and other works; railways, (steam, horse, elevated, and inclined); electric lighting; gas for heating purposes, bridges, new buildings, etc. It might be added that many more buildings would be erected were wages and materials not so high. The demand for brick and bricklayers was perhaps never greater.

Mr. Stevens, of San Francisco, who is a contractor and builder, stated that building operations were, at the present time, more active than they had been at any time for the past five or six years. All brick masons are now fully employed. Besides the numerous buildings now under way in various parts of the city, many more are already contracted for. These facts are a sure indication that we have "touched bottom," and are now on the ascending grade toward a general and solid prosperity.

Some time since, the use of sawdust in mortar was recommended as superior even to hair for the prevention of cracking and subsequent peeling off of rough casing, under the action of storms and frost. Some one by the name of Siehr, says that his own house, exposed to prolonged storms on the seacoast, had pieces of mortar to be renewed each spring; and after trying, without effect, a number of substances to prevent it, he found sawdust perfectly satisfactory. It was first thoroughly dried, and sifted through an ordinary grain sieve, to remove the larger particles. The mortar was made by mixing one part of cement, two of lime, two of sawdust, and five of sharp sand, the sawdust being first well mixed dry with the cement and sand.—*Journal of Industry.*

Send for a copy of the "Steel Square and its Uses," handsomely bound and illustrated. Price 75 cts.

Disgraceful Plumbing in Chicago.

We take the following reports of inspectors of tenement houses in Chicago from the Chicago *Times.* The condition of things they show is an outrage and a disgrace, and it is to be earnestly hoped that the recent law of the State of Illinois regulating the building and plumbing of tenement-houses will prevent its continuance. If the statement of the *Times* is correct, that these are only a few cases from long lists published weekly, the emergency clause of that law was abundantly justified.

No. — State street, two-story and basement frame, 22x100 feet, 30 rooms, occupied by 56 persons. Plumbing and drainage very bad; privies overflowing. Place filthy in the extreme. Filth and garbage fill the area under the sidewalk, and stagnant water from the waste-pipes under the hallway of the basement. The waste-pipes are untrapped. There is scarcely any ventilation for the 29 persons who live in the basement. The walls are black as night, and the whole premises are a disgrace to civilization.

No. — and — Clark street, three-story and basement frame rookeries, containing 28 rooms, in which live 41 persons. Plumbing work leaky and untrapped. Drainage stopped up, privies overflowing, reeking, and foul yard strewn with garbage; roof leaky, and walls dirty.

Three-story frame dwellings, 34 rooms, occupied by 54 persons. Water-pipes broken, drainage bad, and privies full and overflowing. The waste-pipes do not connect wlth the sewer. The waste-water spreads itself over the ground under the building, where it remains stagnant, emitting foul and offensive vapor. The yards are full of ashes and garbage. The catch-basins have not been cleaned for three years. The walls are black and grimy, and the waste-pipes are untrapped.

Of another house 20x30 feet, three stories, with 23 rooms, occupied by 27 persons, the inspector says: "It is impossible to describe the actual degree of filthiness of these premises. The ground floor is in itself a mass of reeking, stinking, sickening filth. One of the catch-basins is solid with refuse, and the other is horridly filthy. Some of the waste-pipes do not connect with the sewer, but empty on the floor, and the contents are thus allowed to roam around promiscuously at their own stinking will, until they reach the catch-basin, if they ever succeed in doing so. The soil-pipe is defective, and the box in which it is inclosed acts as a ventilator for the cellar, but carries all the foul air to the rooms above, making the stench in them unbearable."—*Sanitary Engineer.*

A Word With Our Patrons.

To SUBSCRIBERS.—Since last issue, we have been questioned in reference to omissions on our part to notice certain claimed irregularities in connection with a public edifice erected in this city, in the construction of which it is charged, that a very considerable proportion of the materials specified were not used. In connection therewith, it was hinted that we had not performed a faithful part as the representative journal of the architectural profession and building interests in this city, and that motives and influences personal or otherwise, had induced the omission.

To all this we answer, and here and now repeat with positive emphasis, that we did not and do not now know anything about the matter referred to, beyond the *ex parte* statements made by the complaining parties. We have never seen the specifications, nor has our attention been called to them, or the fact of the case, if the irregularities related have been practiced. Consequently all suppositions or inferences of neglect of duty on our part is without the shadow of foundation in fact.

DEFINING POSITION.

We wish it to be clearly understood, that while we are and ever shall be ready to expose errors and wrong-doings, *properly within the mission* of *this journal,* when supported by *well-authenticated statements of facts,* we recognize no obligation resting upon us to go beyond a reasonably right and proper course to find irregularities, and stir up issues which contain the elements of bitter strife, criminations and recriminations, and more generally ending in personal hostilities and abuse. Consequently, in all such cases, we shall require full and well-sustained statements from complaining parties, or such sure and unmistakable evidence of the presence of wrong as shall dispel all doubt as to their existence. We might easily place ourselves eternally in "hot water," by random statements made upon superficial conclusions and outward appearances. But this would be neither wise nor profitable to any one, and might be productive of many evils. If any of our readers have grievances to relate, we will give them respectful hearing, reserving the right to use or discard them as best judgment shall dictate. We shall shrink from no duty made apparent, and shall deal with all matters and issues fairly and justly, fearing the frowns of none, nor courting the smiles nor favors of any. At the same time, we extend the request, that all architects and contractors furnish us with such statements of facts known to them, as contain points of interest, from which general or special instruction may be derived. We desire that all our readers shall feel that they have personal interests in the character and success of this journal, as being the only one upon the Pacific coast in which the interests of architects, contractors, manufacturers, and owners of real estate are specially represented.

TO ADVERTIZING PATRONS.

We return thanks for the generous bestowal of advertizing patronage, and feel pleased at the profitable returns that have followed. Many have reported favorable results in city and State trade, and others in orders from beyond our State limits and the mountain lines which separate us as a people from the Eastern States. Consequently, mutual advantages have been derived through our advertising columns, which are free to all, and denial of "exclusive privilege" should not give offense. The rights accorded to one are due to each, and each should be willing that all should receive coequal notice and advantages.

Whitening in Paris-White and Zinc.

House whitening of late years has grown into quite an extensive business. While that of paper hanging has not been so generally patronized. In many of the better class of houses, fresco painting, as more exclusive, has been the rule, and very extensively adopted. While others, not so realistic in their taste, adopt the brilliant semi-fresco, combined with the more elaborate paper hangings, producign splendid effects for house embelishment. White walls, composed of pure paris-white with blanc de zinc, have their admirers; for it bespeaks at once for the house a healthful cleanliness. An odor of purity permeates every apartment that has undergone the manipulating process of the artisan whitener. The use of coals, kerosene, and gas, as manufactured at the present time, is a sure and effectual mode of destroying all whitened surfaces in a very short time. The many new and revised patents for stoves and ranges do not remedy the evil, but continue to clog with soot its interior linings as well as the chimneys, and the smoke is carried by currents of air into all parts of a house. What is wanted in a stove or range is a draft sufficient to carry off freely all the gases and smoke generated in combustion of wood or coal. The smoke that is allowed passage through the house soon becomes absorbed in the white surface of walls and ceiling. Paris-white is a great absorbent of heated vapors, be they from the stove, lamps of kerosene, or gas-burners. A new house with its hard finished plastered walls will receive these discolorizations to a certain extent, but will eventually become soiled and stained by the concentration of acids and oils. To whiten new walls with preparations of whitening and zinc, care should be taken in its proportions; when fully combined it should be laid on with long bristles brushes with short handles, and very thoroughly manipulated, and laid out evenly with as thin a coat as is consistent with the work to be done. Thin coats are the more adhesive, and binds evenly, leaving no bunches or ridgy brush marks surging all over the work. It is not necessary that the brushing should always be one way, as in painting, but it should be blended smoothly together, until the work is uniform in surface. In tinting the walls, avoid deep shades, as they eventually deepen with age. Light, warm tints, or neutral colors, produce cheerfulness. Walls laid in with color serve as a fitting background for pictures or other ornaments. Plain or gilt borders in paper, can be applied, and will define the color-line between the ceiling, and wall, and add a rich finish to the whole. Where the rooms are to have a renewed coating, the walls should be scraped off and sponged thoroughly, well pointed up, and rubbed down with sandpaper, leaving a clean, smooth surface to receive the whitening. In making up the stock, use the best paris-white and French zinc; to bind this, use white glue in the proportion, three-fourths in ounces to the pounds of the mixture to be used.

T. E. W. C.

THE (N. Y.) NEW BUILDING LAW.—We have before us a copy of the law amendatory to all previous enactments, bearing upon and regulating the construction of buildings in the City of New York, passed by the legislature, and recently signed by Governor Cornell But the full amount of matter for present number of our journal being in print, a further reference to said law will necessarily have to be deferred until our October issue.

Market Reports.

LUMBER.—The demand for lumber is fully equal to the supply. It will be noticed that the receipts of lumber this year far exceeds that of last year.

Receipts since January 1st:

Lumber	135,170,780
Shingles	43,540,410
Laths	11,101,200

A correct price list of lumber will be found below:

Pine.

Common Rough, up to 40 feet, per M feet			$21 00
"	41 to 50	" "	22 00
"	51 to 60	" "	23 00
"	61 to 70	" "	25 00
"	71 to 80	" "	27 00
Refuse Rough		"	17 00
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over,		"	28 00
"	4 " and under, and 1¼x4 and 1¼x6		
Flooring and Stepping			30 00
Rough Clear for Flooring, $1.00 less than above rates.			
Second quality Flooring add stepping,		per M feet	22 50
Ship Plank, Rough		"	26 00
"	Planed 1 side	"	30 00
"	" 2 sides	"	3 t 00
Deck Plank, Rough		"	31 00
"	Dressed	"	35 00
Laths		per M	3 50
Wool Slats		"	10 00
Shakes		"	9 00
Redwood Posts		per piece	11

Redwood.

Rough Merchantable		per M feet	21 00
"	Refuse	"	17 00
Surface No. 1		"	32 50
"	1 x 6	"	30 00
"	No. 2	"	25 00
Rustic, No. 1, 1 x 8		"	30 00
"	No. 1, 1 x 10	"	32 50
"	No. 2	"	27 50
"	Under 10 feet	"	27 50

T. & G., 1¼ x 4 and 1¼ x 6	per M feet	$31 50
" 6 in. 12 ft. and over	"	30 00
" " 7 to 11 feet	"	28 00
" " under 7 feet	"	25 00
" " No. 2	"	32 50
T. & G., Beaded, 12 feet and over	"	28 00
" " 7 to 11 feet	"	25 00
" " under 7 feet	"	27 50
Half-inch Surface	"	25 00
Pickets, Fancy	"	18 00
" Rough, Pointed	"	15 00
" Square	"	22 50
Siding, ½ inch	per M	2 25
Shingles	"	3 40
Battens, ½ inch, lineal feet		

NAILS.—Since January 1st we have imported 146,987 kegs. Prices are steady here with a good demand.

10 to 60 pennies, are quoted at		$3 75
8 " "		4 00
6 " "		4 25
5 and 4 " "		4 50
4 and 5 pennies, brad heads, at		5 00
6 " "		5 25
8 " "		5 00
10 and upward "		4 75
3 penny fines "		7 25

PAINTS.—The fall demand is opening up with a large demand for both city and count y orders.

Building Intelligence.

We report a more cheering aspect in regard to building matters generally. We have been called upon to chronicle the letting of more contracts this month than we have for some time past. Right here we would set ourselves aright in one thing. *Whenever, in this column, we speak of the* PAST MONTH, *we want it understood that it means from the tenth of one month to the tenth of the other.* Our publication day being the 15th of each month, we are enabled to collect information up to the 10th.

There is a much better feeling amongst those of the *well-to-do* class, and many are contemplating building instead of paying rent. We are well advised of contemplated improvements in the vicinity of Golden Gate Park. We know of several who have subscribed liberally in furtherance of a certain object, but we are not at liberty just now to publish information in regard to it. Certain it is, if all goes well, that lively times are ahead for a great many in the above mentioned locality. One prominent real estate owner has consulted us in regard to the erection of some fifty working men's cottages. To use his own words, "just for a *spec*, you know, as money will soon be so plenty that I won't know what to do with it. Banks won't have it, so I am going to make the working men invest a little of their earnings in buying nice little homes."

A difference of only $2,500 exists between buyer and seller on a piece of property that is valued up in the tens of thousands. If the buyer can get it at his figure, a fine four-story brick building will be erected. Why such a small amount, on such valuable property, should cause both parties to be at loggerheads is more than we can conceive. As we remarked a few months ago, things would be much brighter if owners would try to calmly reconcile their differences, instead of the almost mulish way that seems to be generally adopted.

We would advise all who contemplate building, that it will be a long time before material and labor is any cheaper, and so NOW is the time to build. Labor is very scarce now, and the chances are decidedly in favor of it becoming still scarcer, and therefore *dearer*. Lathers can only be had at an advance of fifty cents per thousand, and few to be had at that price. We hear it is in contemplation soon to advance lumber a little. The demand for the latter is full up to the supply.

Our earnest advice to all who contemplate building is to secure a responsible, competent architect, *have your contracts signed immediately*, and thus secure a comfortable home or building before winter sets in.

In this connection we would say that Californians ought to consider themselves blest in regard to our glorious winters. There need be no cessation in building on account of weather.

SAN FRANCISCO.

Four-story brick building on Market street between Beale and Main. Owner, W. E. Dean; architect, D. Farquharson; contractor, ——; cost, ——.

Double three-story frame dwelling on corner of California and Buchanan. Owner, C. P. Blethen; architect, H. Hockholzer; contractor, Conrad & LeBar; cost, $22,000.

Three two-story frame dwellings on Sacramento street near Buchanan. Owner, C. P. Blethen; cost, ——.

Two-story frame dwelling, brick foundation, on Golden Gate Avenue between Hyde and Larkin. Architect, W. Mooser; contractors, Quinn & Hennessey; cost, $6,000.

New front in brick building on Essex street between First and Second. Owner, Petersen; contractors, Moore Bros.; cost, $2,300.

Two-story frame dwelling, No. 1503 Buchanan street. Owner, C. Benson; contractor, Corahan; cost, $1,500.

Two one-story frame cottages on Scott street between Pine and Bush. Owner, P. H. Vey; architect, R. Warren; contractor, J. T. O'Brien; cost, $2,300.

Additions and repairs to residence No. 1621 Post street. Owner, W. Mills; architect, J. J. Newsom; contractor, W. Hall; cost, $3,000.

Additional story to dwelling on Turk street near Larkin. Owner, J. Nichols; contractor, S. M. Baldwin; cost, about $2,000.

Three-story brick building on Valencia and Army streets. Owner, H. H. Bancroft; architects, Hoffmann & Curtis; contractors, Terrill & Slaven; cost, $6,000.

Raising and additional story to building on Powell street between Sutter and Bush. Owner, Mrs. E. M. Scott; architects, Hoffmann & Curtis; contractors, Lentall & Powell; cost, $1,700.

Additions to house on Silver street near Third. Owner, —— King; contractor, Culverwell; cost, $1,000.

Two-story frame building for the California State Woman's Hospital, on Sacramento street between Lyon and Baker; architects, Wright & Sanders; contractor, J. S. Burpbee; cost, $5,500.

One-story and basement frame dwelling on Filbert street between Jones and Leavenworth. Owner, W. Neuwald; architect, W. Winterhalter; contractor, B. Dryer; cost, $2,500.

Alterations to dwelling, No. 828 Fulton street. Owner, C. Hansen; architect, W. Winterhalter; contractor; Huwe; cost, $1,000.

City Railroad Company is having the roof of one of their stables on Mission street, opposite Fourteenth, raised and an additional story added. A large brick vault is to be added. Day's work; cost, about $4,000.

Two-story and basement frame dwelling on Fair Oaks street between Twenty-fourth and Twenty-fifth. Owner, M. A. Pomeroy; architect, Chas. Geddes; contractor, W. T. Thompson; cost, $4,000.

Two-story frame dwelling on San Jose Avenue near Twenty-fourth street. Owner, Edwards; contractor, W. P. Carman; cost, $1,400.

Two-story frame cottage on Twenty-fourth street between San Jose Avenue and Guerrero street. Owner, Edwards, contractor, W. P. Carman; cost, $1,900.

Mr. Edwards is erecting five cottages on Twenty-fourth street and San Jose Avenue. Day's work; cost, about $1,500 each.

Two-story frame dwelling on Seventeenth street between Sanchez and Church. Owner, J. McKerney; contractor, —— Pare; cost, $2,500.

Two-story frame dwelling with basement on Jones street near Eddy. Owner, Baldwin; architect, J. A. Remer; cost, about $4,500.

Raising of and additional story to building No. 721 O'Farrell street. Owner, Levy Bros.; contractor, J. Martin; cost, about $1,000.

Three two-story and basement frame dwellings on Ellis street corner of Leavenworth. Owner, W. Shannon; architect, J. P. Gaynor; contractor, Terrill and Slaven; cost, about $16,500.

Contract for the foundation of the Italian Church, mentioned in our last, has been let to O. E. Brady. Architect, T. J. Welsh; cost, $2,675.

Repairs to dwelling on Silver street. Owner, Kennedy; architect, T. J. Welsh; contractor, J. L. Binet; cost, ——.

Repairs to dwelling on Sutter street between Laguna and Buchanan. Owner, W. Miller; architect, T. J. Welsh; contractors, Gilming & Brewer; cost, ——.

Additions to dwelling on O'Farrell street near Hyde. Owner, Kelly; architect, T. J. Welsh; contractor, G. W. Hansbrough; cost, ——.

Two two-story and basement frame dwellings on Grove street near Laguna. Owner, H. W. Meyers; architect, Geo. A. Bordwell; contractor, A. Jackson; cost, $4,000.

Two-story, four-tenement house in rear of above. Owner, H. W. Meyers; architect, Geo. A. Bordwell; contractor, A. Jackson; cost, $2,500.

Five-story brick building on Market street between Sixth and Seventh. Owner, A. Jenks; architect, Schroepfer; contractor for brick-work, Butler & McGowan; carpenter work, Wm. Pluns; cost indefinite, but with present ideas carried out will be about $35,000.

Mr. J. Lisette is about to erect eight tenement houses on Valencia and Eighteenth streets; contractors, Githings & O'Neil; cost not fully determined.

Two-story frame dwelling southeast corner of Jackson and Franklin streets. Owner, W. F. Myers; architects, Curlett & Eisen; contractor, P. Crichton; cost, $9,000.

Two-story frame dwelling on south side Sacramento street, between Laguna and Buchanan. Owner, G. W. Hudson; architects, Curlett & Eisen; contractors, Ingerson & Abbott; cost ——.

Thirteenth avenue and Railroad avenue, South San Francisco, two-story cottage; contractors, McCann & Jeffries; cost, $1,550.

Corner Seventh avenue and N street, South San Francisco, one-story dwelling. Owner, J. Bordenotte; contractor, Dunshee; cost, $1,000.

Two-story frame dwelling, 1,627 Turk street. Owner, Dr. Vandeburgh; architect, Schroepfer; contractor, W. Pluns; cost, $4,600.

Two-story frame on Everett street, between Third and Fourth streets. Owner, J. J. Marks; contractors, McCann & Jeffries; cost, $1,800.

Additions to building on Fifth and Townsend streets, Owner, —— Getchen; contractor, Wiseman; cost, ——.

Additions to building on Eighth street, between Mission and Howard streets.

Two two-story house on Sutter street, between Hyde and Larkin. Owner, Sellinger; architect, P. R. Schmidt; contractor, John Furness; cost, about $10,000.

Two two-story and basement frame dwellings on corner of Sacramento street and Van Ness Avenue. Owner, Ivancovich; architect, P. R. Schmidt; contractors, Conrad & Chisholm; cost, about $20,000.

OAKLAND.

One-and-a-half story frame cottage on San Pablo Avenue. Owner, Charles Klinkner; architects, S. & J. C. Newsom; contractors, Ingerson & Abbott; cost, $2,600.

Two-story frame residence on Seventh Avenue and East Twenty-First street, East Oakland. Owner, Judge Chamberlain; architects, S. & J. C. Newsom; contractors, Gee Bros.; cost $6,000.

One-story cottage, corner Market and Chestnut streets. Owner, F. Delger; architects, Matthews & Son; contractor, Ryan; cost $1,200.

One story and basement brick store, corner of Eleventh and Washington. Owner, F. Smith; architects, Matthews & Son; cost, about $8,000.

One-story dwelling on Webster street. Owner, Collins; architect, C. F. Mau; contractors, Ingerson & Abbott; cost, $4,000.

Two-story house at Mountain View Cemetery. Owner, Marble Association; architect, C. F. Mau; contractors, Ingerson & Abbott; cost, $5,000.

We received quite a large list of buildings to be erected in this place, but we defer mentioning them until the contracts are signed.

PETALUMA.

Brick building adjoining the Masonic block. Owner, A. Johnston; architect, W. Schrof; day's work; cost about $4,000.

Quinn & Brainard are having an additional story made to their brick building on Washington street, near Main.

About twenty buildings have been erected in this place this year, at an average cost of about $2,000 each.

SACRAMENTO.

Frame building on Eighth street, corner of H. Owner, G. W. Chesley; architect, Seth Babson; contractor, Bovyer; cost, $8,800.

ALAMEDA.

Alterations to dwelling on Willow street, near Santa Clara Avenue. Owner, Dickinson; architect, G. A. Bordwell; contractor, B. F. Ellis; cost, $2,500.

MISCELLANEOUS.

CONTRA COSTA COUNTY.—Billiard room, dairy, and laundry. Owner, Daniel Cook; architect, A. Laver; day's work; superintendent, Chas. H. Ackerson; cost, $25,000.

REDDING.—Two-story brick building. Owner, School District; architect A. J. Bryan; contractor, J. A. Walker; cost, $8,000.

TEHAMA.—Two-story frame building. Owner, School District; contractors, Swain & Hudson; cost, $4,500.

BERKELEY.—Two-story frame dwelling. Owner, T. Booth; architects, J. C. Matthews & Son; cost, $3,000.

Cottage near town; architects, Matthews & Son; cost, $3,000.

MENLO PARK.—Two-story frame residence. Owner, J. J. Felt; architect, Schroepfler; contractors, Waterbury & Maxwell; cost, $7,000.

ST. HELENA.—Lime house and lumber sheds. Owner, F. Pellet; contractor, W. T. Simmons.

ANTIOCH.—Two-story frame building for hotel. Owners, Doran & Co.; architect, T. J. Welsh.

DECOTO.—Mr. L. Palmtag is erecting a frame building. Contractors, Chas. Collins & Chris. Meyer.

BENICIA.—D. N. Hastings is erecting a two-story frame dwelling.

SANTA CLARA.—Two-story frame dwelling. Owner, John Morgan; architect, H. D. Mitchell; cost about $2,000.

ALVARADO.—Two-story frame building for school-house. Architects, Percy & Hamilton; contractors, Haskell, Smjlie & Co.; cost, $4,087.

FRESNO.—Mr. Burch is building a brick residence.

One and one-half-story residence on corner S and Tuolumne streets. Owner, Willard Sullinger.

RIVERSIDE.—The Baptists are erecting a church. Contractors, Boggs & Ripley; cost, $4,125.

RUTHERFORD.—Two-story frame dwelling. Owner, H. H. Harriss; cost, $3,500.

GALT.—One-story frame building, corner Fifth and E streets. Owner, Dr. Martin; architect, C. W. Swain; day's work; cost, about $1,000.

BENICIA.—One-story cottage. Owner, G. A. Durner.

Two-story store and residence, corner Fourth and H streets. Owner, G. W. Leathe.

SAN RAFAEL.—Two-story frame dwelling. Owner, Adams; architect, W. F. Smith; contractor, W. M. Fletcher; cost, $4,500.

WOODLAND.

One-story frame dwelling, corner R. R. street and Lincoln avenue. Owner, W. W. Porter; contractor, G. K. Glenn; cost, $1,850.

Remodeling into Board of Exchange Rooms, of the old Pioneer Block. Owner, A. D. Porter; contractor, G. K. Glenn; cost, $2,300.

Frame building for Baptist Church on First street, south of Main; architect, S. Caldwell; contractor, G. K. Glenn; cost, 2,980.

Three-story brick building for hotel, third floor to be used by the Masonic association; architect, N. D. Goodell; first two stories will be done by day's work, third floor by contract to W. H. Winnie; cost, for hall alone, $8,580.

One-story frame dwelling, corner First and Lincoln avenue; contractor, S. Caldwell; cost, 1,350.

Post-office building on Main street, between First and Second; architect, G. K. Glenn; cost, $3,300.

Frame residence on the corner of Second and Court streets. Owner, Dr. Welges; architect, Felton; contractors, A. Stamp & James Amesbury cost, $4,250.

Publication Notices.

We have received Vol. I. of "*Palliser Useful Details*," published by Palliser, Palliser & Co., Bridgport, Conn. It consists of over forty pages—20x26 inches—each page being filled exclusively with details in original design, showing about every conceivable thing in connection with house construction and finishing. The publication price of $3 per volume is certainly very low for a publication containing so large an amount of practical information and instruction. It cannot be otherwise than useful to all practical architects, and especially so to students of architecture, and builders who undertake the construction of buildings for which plans and details are not furnished by architects. Orders for same received at this office, and copies sent to any address as soon as a supply can be had from the East.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion, is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

The California Architect and Building Review.

VOLUME II. NUMBER 10. } SAN FRANCISCO, OCTOBER, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect

AND

BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion..... $1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion..... 1 25
On other inside pages, per square, each insertion..... 1 00

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The assassin's work is completed. A noble and good man has been slain. James A. Garfield is no more. After a life more pure and honored than is vouchsafed to the greater number of mankind, he has passed from the sweet endearments of a happy home, the embrace of loved and loving hearts, and the associations of his fellow-men, to enter upon that better life beyond the surging strifes and turmoils of time, to reap the rewards that await those who, by living well and worthily on earth, enjoy after they have laid their laurels down, and kissed the hand of death.

It would be a fruitless effort were we to attempt to add a single word of praise to the memory of the great and good man who has fallen by the assassin's hand, or seek to express the world-wide as well as national grief and heart-felt sorrow everywhere and by all expressed at the sad event. He has gone to rest; gone where the struggles and ills of life are hushed in the quiet stillness and peaceful calm of that repose beyond this eventful life; that state of being where neither goodness nor greatness shields from the terrible ills that surround mankind at every tread.

He lives no more, yet forever speaketh; for history will carry down upon its pages to future generations the golden life examples which the fallen has bequeathed to his race by his death. Its lessons are immortal, and will continue forever. And the seed sown with his suffering and death, will germinate and bear fruit through all coming ages. The good man dieth, but his works remain imperishable and indestructible.

The sacrifice to us as a people was great, but the fact of its greatness enhances its value. Had some less worthy and good man been slain, the event would have received perhaps no more than respectful attention and sorrow, less keen and universal, leaving no lessons to impress the thoughts of mankind. But the Almighty Ruler of worlds has, from time to time, marked periods in the history of the human family by extraordinary events, which have caused nations, and sometimes the universe of mankind, as in the case of him whose death we all sincerely mourn, to pause in their impetuous and thoughtless rushings on through life to meditate upon the uncertainties of human conditions. To this end, an inscrutable Providence seems to have interposed his purposes for good to man, by demanding of us as a nation our best, most honored, and purest man, to whom all eyes and hearts were turned with confiding trust, hoping that wisdom, integrity, and honesty of national rule would be amplified in his career as chief magistrate of this great republic. But the finger of eternal purposes has cut short those hopes, pointing higher than human spheres, and bidding all to look to him who dieth not, and whose government shall have no ending.

The "Eastlake Style" of Architecture.

This modern idea of architecture is of comparatively recent origin, being the outgrowth of conceptions originating with Mr. Charles E. Eastlake of England—not as a style of house architecture, but in connection with house furniture and internal decorations, as contained in a published work by Mr. Eastlake, entitled "Hints on Household Tastes." Its peculiar features, however, soon became popular, not only in the sphere of the mechanical arts to which it was first applied, but in the external embellishment of buildings. This popularity, to a greater or less extent, has spread throughout all sections of the United States, and is now being greatly sought after upon the Pacific coast.

Unfortunately, it is simply a "style"—not a classified "order" of architecture, with defined principles of treatment, and rules of application and delineation. It is so unrestrained in its requirements, that the wildest conceits of the uneducated pretender may be imposed, and the most absurd and distorted features defended as "in keeping with the style." Delineated with accurate taste and good judgment, its application in the construction of a certain class of buildings may be made pleasing to the eye; but the excessive gaubery indulged in by a class of reckless adventurers, who abuse the integrity of this new idea by extravagant, unsightly, and ill-conceived creations of their own, is calculated to render it offensive and repulsive to those enjoying a fair degree of refinement in the æsthetics of architecture; this may cause its rejection even as a "style," except by a limited number who prefer oddities and peculiar things because they are such.

Could Charles E. Eastlake behold some of the extravagant delineations covered by his name, he would doubtless cry to the gods to blot out the monstrosities as hideous deformities. Judicious liberties and combinations are excusable in all orders and styles of architecture; but when they run rampant, with no regard to consistency, beauty, or harmony, the doctrine and rules of propriety cease, and disorder and distraction ensues. The tendency of the "new style" runs in this direction, as it provides the basis upon which unqualified men may operate, and find a defense for their stupid creations.

"All can't invent that imitate,
No more than those who clothe us can create."

And so it runs with the Eastlake style. Those who can invent nothing meritorious in architecture, can imitate the new idea; that is to say, they can scribble up something that *looks peculiar*, and give it the name of Eastlake.

Building and Prices.

The architects, or at least some of them, are talking bearishly about building schemes. They think prices too high, and report an unwillingness among investors to engage in new enterprises until the price of labor and bricks is lower. It is probably true, that we have been overdoing the building of houses, not only in New York, but all over the country; and the consequence has been a material advance in labor in certain departments, such as bricklayers, masons, and an enhancement in the price of bricks, lumber, and other building material. But, notwithstanding the apparently excessive building, rents are advancing everywhere. There are perhaps more houses in the market for sale than the public care to buy just now, but there are not enough houses to rent. But the architects are not to blame for their bearish talk; this is the dull time in the year for them, even the briskest seasons, and their interest is on the side of lower prices in labor and material. If they succeed in talking down quotations, they will make building business all the brisker by and by.

It is not, however, reasonable to expect any serious set back in the price of labor and material. The volume of our currency is steadily increasing; we have nearly doubled the circulation of gold, silver, and paper since January, 1879, and every month shows new additions to the circulating medium. There were exceptional reasons for the advance in bricks last summer, but the higher price of labor will make every purchasable commodity dearer. The laborer has an excuse for his additional wages, in view of the increased cost of living. The prices of flour, vegetables, and rent have all advanced, and the laborer, to make both ends meet, must get more wages. Hence we do not look for any reduction, either in the price of labor, or in the manufactured articles on which labor is employed.—*Real Estate Record.*

Seasoning Timber.

A new mode of seasoning timber has been introduced by Mr. C. René, pianoforte maker, of Stettin, Germany, who utilizes the property of oxygen, particularly of that modified by the electric current, to produce the desired effect. It is very well known, that wood seasoned for years is much more suitable for all purposes than if used soon after it is thoroughly dried. Several artificial means of seasoning have been introduced, but no system at present appears to be largely adopted; and if a cheap and simple process was discovered, it would no doubt tend to improve woodwork generally, which is now too often finished in a defective manner, owing to the damp state of the timber used. This is often noticeable in the doors and windows of newly built houses. Mr. René introduces his process particularly for musical instruments, though there seems no reason why it should not be used for many other purposes also. Instruments thus treated are said to possess a remarkably fine tone, and are not likely to deteriorate, but improve with age, as did the famous violins of the old Italian masters.—*The Builder and Wood-Worker.*

Both Sides in Error.

It is not pleasant to contemplate inharmonies and discords in any connection. Life, at best, is full of bitterness, and everything which tends to stir up and vitalize antagonism is to be deplored. Owners of real estate are not generally rogues and cheats, nor are mechanics, as a whole or in the main, dishonest swindlers and villains. Yet the course of things in connection with the building business upon this coast has run in channels which have created, to a considerable extent, this to be regretted state of feeling. The experiences of a large number of owners have embittered every sentiment of their natures, to the extent of placing all mechanics upon the roll of condemnation, and bunching them together, as a band of base and unreliable men. This can only be in part justified. Because one party may have perpetrated a wrong—a swindle if you please—upon another, that fact is not a justification for universal condemnation. Nine men may prove themselves to be dishonest, yet the tenth may be as pure as it is possible for human nature to be; and if all are to be condemned because even a majority are bad, then the innocent must be made to suffer. But many of the causes of complaint are made bitter by the ill-nature and rash judgment of the complaining parties, and often, where only slight provocation exists, mountains are reared, and false colorings produced.

In like manner, many mechanics in the various branches entertain revengeful feelings against owners, upon general principles, and consider it a rightful and justified privilege to practice every advantage that offers, to beat the owner. No kindly sentiment controls their act, nor do they hesitate to perpetrate any species of meanness or revenge. Some take delight in doing ignoble things. "just for the fun of it," and gloat over deceptions practiced. All this is wrong, and should not be. All mankind are but human, and liable to commit errors, even in moments of calm reflection, when judgment and cool deliberation control the mind and heart, and passion and excited earnestness are held in subjection. But when the rash and unruly mental and moral element is permitted to assert themselves, and the passions and lesser feelings of the moment allowed to dominate, life becomes embittered and piercing as the cold north winds, freezing and chilling the finer sentiments of the soul, and multiplying unnecessary shadows over life's otherwise sufficiently dreary pathways.

The Largest Arch.

According to the *Scientific American*, this country possesses the largest masonry arch in the world—an arch which forms part of one of the most important engineering achievements of recent years, the aqueduct by which the city of Washington it supplied with water. The arch in question carries the aqueduct over the Cabin John Creek, with a span of 220 feet. The hight of the arch is 101 feet, and the width of the structure 20 feet. The arch forms an arc of a circle, having a radius of 1,342,852 feet. When the center scaffolding was removed, the arch (unlike all other works of the kind) did not settle, the keystone having been set in winter, the center struck in the summer. The other notable masonry arches of the world are the Chester arch across the River Dee, at Chester, England, with a span of 200 feet; the famous center arch of the new London bridge over the Thames, with a span of 152 feet; Pont-y-Prydd, over the Taff, in Wales, 140 feet; the bridge across the Seine at Neuilly, France, with five spans each of 128 feet; the nine spans of Waterloo bridge, London, each 120 feet; and the celebrated marble Rialto bridge in Venice, with a span of 98½ feet.—*Journal of Industry.*

The Manufacturing Interests of the United States.

"The United States produces nearly all the flannels, blankets, and carpets we use; nine-tenths of the woolen shawls, fancy cassimeres, suitings, coatings and hosiery we wear; two-thirds of the worsted dress goods; four-fifths of all the wool our country needs; and more than four-fifths of all the woolen fabrics worn by our people. Not one American in twenty but is clad from head to foot, out and out—his coat, boots, hat, linen, and flannels, his watch, his knife, his pencil, his gloves, his jewelry, each and all American products."—*Philadelphia Commercial Bulletin.*

The foregoing is but a limited encompassment of the grand industrial interests of the country. Within the lifetime of millions of people now enjoying the blessings of this great land of liberty, we were largely dependant upon England, France, Germany, and other European nations for thousands of manufactured things; in metals, woods, and fabrics of every texture and kind, which to-day are produced upon our own soil in better shape by the almost innumerable host of skilled mechanics and artisans who have, in nearly every line, equaled those of foreign countries; and in many, reached beyond and grasped grander results in mechanical sciences, to an extent not only placing American manufactures and products upon an equal footing with those of other nations, but so far excelling and surpassing them in innumerable connections, as to open the markets of the world for their sale and purchase.

From pins and needles, and children's toys, up to the powerful and most massive machinery impelled by steam or other forces; for nursery, household, farm, agricultural, manufactures, and other purposes; tools and implements of incalculable varieties; the "iron horse," labor-saving machinery, in all their multifarious forms, have been so far perfected by American mechanical genius, that the Old World is forced to acknowledge superiority, and accept results which have been developed by the indomitable mind-powers and energies of the unwearying sons of toil and invention in the United States.

In this, there is a lesson of political import. One which points to the fact, that the free and liberal institutions of our country are far better adapted to the development of human thought among the masses, than the domineering, monarchical, and imperial countries of Europe. The liberty and privileges enjoyed under a free government, may be, and sometimes doubtless are, abused and prostrated to corrupt purposes and actions, in both social and business life. But there can be no successful denial, that where all trammels and restraints are removed, and the masses are allowed to think for themselves, and to reduce their thinking to practical shapes, immeasurable benefits follow. It is the inthrallment and debasement of human kind that produces ignorance and vice, and reduces millions of our race to the level of the brute creation; or worse, because instinct and passions are strong even in the baser classes, and these, unrefined by the sweeter influences of more elevated life, must produce debasements in numerous forms, and impose conditions upon which the cultured and refined cannot but look with feelings of sorrow and sympathy.

So much building is going on in Paris at present, it is said, that the stock of iron for building purposes is entirely exhausted, and no iron of this description is to be had for love or money. Some builders actually pay the 6f. duty for Belgian iron, merely to be able to get on with their contracts.—*Journal of Industry.*

☞ **Subscription price of this journal for 1881 will be $2.00 in advance.**

Architects' Fees.

We find the following in "Hallett's third edition, revised and enlarged, Printed Form of Specifications," a publication largely accepted and followed in the Eastern, Southern, and Western States:

SCHEDULE OF FEES

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Full professional services, (including supervision) 5 per cent. on total cost.

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General drawings only, 2½ per cent.

Preliminary drawings only, 1 per cent.

For work costing $5,000 or less, 4½ per cent. for the drawings, and 3 per cent. additional for supervision.

For warehouses and storage buildings, 3 per cent.

For decorative work, monuments, furniture, etc., 10 per cent.

For alterations of buildings, an additional charge for survey, adaptation, and measurement.

Altering drawings and specifications after they have been perfected, an additional charge in proportion to the time employed.

Selecting or purchasing materials, furniture, pictures, carpets, etc., a percentage to be agreed upon.

Time spent in visiting parties out of town, at their request, whether commissions are finally given or not.

If the client is already in possession of a portion of the building material, the architect's fees to be computed upon total values.

Necessary traveling expenses are paid by client.

Fees are successively due as the work is completed in the order of the above classifications.

Until estimates are received, charges are based on the proposed cost, and payments to be made as installments of the entire fee.

DRAWINGS, AS INSTRUMENTS OF SERVICE, ARE THE PROPERTY OF THE ARCHITECT.

(If the foregoing, or some other compensating scale of charges, were adopted by architects generally, there would be fewer impecunious men in the profession, and a greater degree of integrity and honesty in the erection of buildings. Architects who are well or fairly paid for their services, can afford to practice unimpeachable correctness in all matters. While those who perform services for less than paying rates must look to sources outside of their clients for remuneration.—*Ed.*)

A Novel Architectural Design.

A building of novel design, intended for a restaurant, is being constructed at South Atlantic City, New Jersey. The structure is to be in the form of an elephant, and will be 44 feet in hight, 85 feet long, and 22 feet wide. The animal's legs, which are to be 22 feet in hight, will be supported by heavy piling 25 feet under ground, and the two back legs will be filled with spiral stairways, by which the would-be diners may obtain entrance to the interior. The trunk will touch the ground, as though the animal were feeding, and the tusks will serve as chimneys through which the smoke and odors of the kitchen, located in the head, may escape. On the back will be a howdah 22 feet in hight, which will serve as a balcony, and a row of seats will also surround the trunk. The interior will be so arranged through a system of sliding doors, as to be available either for a large theater or dining-room, or as apartments for private parties. Nineteen car-loads of white and yellow pine from the forests of Maine and California, and three car-loads of heavy bolts, will be used in the construction of the monster. Its estimated cost is placed at $27,000.—*The Leffell Mechanical News.*

The History of the Steel Square.

A Description of the Square, with methods and rules by which the length and bevels are obtained of rafters, braces, collar beams, etc. Its application to the various cuts in stair building. The whole designed to be a complete *help* to mechanics, by which they can work in a systematic manner all the various problems in regard to the *cuts in carpentry.*

Having now traced the origin and early history of the square as far as it is in our power so to do, let us turn our attention to the square of our forefathers, and follow, step by step, the improvements that have been made in its manufacture. Contrast the plain iron square, as it was two generations ago, with the beautiful steel square of to-day—the simplicity of the one, the complexity of the other. Consider the material used for the one; the simple machinery required to produce that plain tool with its single line of figures, and graduated only to ¼ inches; the time taken to do the work; the number any shop, forty years ago, could turn out. Contrast the materials used to day; the machinery that had to be invented to grind the beautiful instrument we now use, and, if tapered, to *line* them with absolute exactness; to *space* the lines with precision; to make all the subdivisions of the inch, from the half to the one-hundreth—in English, Spanish, and French measures—and all this at one passage through the machine; to *straighten* the edges, to square the inside and the outside; and these complicated processes all done by automatic action—machinery that to the unskilled looker-on, seems to act with intelligence. See what an advance in mechanic art, in invention, keeping up with the demand in skill, in methods of applying power, and in the astonishing results. Consider the uses, the applications of the two so different tools. How *limited* the *one;* how almost *infinite* the *other.* Look at the house-carpenter or the farmer with the old square in his hand. What mystery is he about to perform? He marks a straight line, or measures a simple given length, or possibly marks out a right angle. That is all. When that is done, he has about exhausted his resources.

But what is now done by the artisan with the modern square? He almost works miracles with it. To the gray-haired backwoodsman they *would* be miracles. The problems solved by it are myriad. They would fill volumes, the geometry of which would puzzle the college student. Yet the natural mechanic, trained to skilled work—though uneducated in school—solves with the greatest ease and pleasure. Truly, the square of our boyhood was a simple tool. Merely a piece of iron, bent at right angles, with one long and one short end. Little dents along the edges, with numbers alongside of each, were all the guides we remember that marked the inches. We never heard of the body, the heel, or the tongue. It had no such parts. We looked in vain for the octagonal divisions, the brace measure, the hundredth scale, the board measure—all were lacking. They were only possibilities in the human mind, lying like ungerminated seeds biding their resurrection—development. They come with the growth of mechanical inventions. And as we look upon the beautifully artistic border around this article, A FAC-SIMILE OF SARGENT & Co.'s No. 100, we marvel at the strides of genius, and wonder what kind of a border that plain old iron square would make, with its one line of humble digits struck into it—one at a time—with a heavy hammer, wielded by the brawny arm of the blacksmith; that was the way the figures became impressed in the first old iron squares. Let us now follow the various improvements that have been made, and note the vast amount of study required to bring the square to its present state of perfection. First, we have the substitution of steel for iron; then the blades, instead of being stamped, were placed between marked rollers, and, under pressure, were drawn from end to end, and thus stamped.

The result of this method was, that the square was increased from one-eighth to three-eighths of an inch in length, according to the quality of the iron or steel used in its construction. To provide for this drawing out in length, the measure on the roller was cut a little short. But with this method there could be no absolute accuracy, on account of the varying hard and soft qualities of the metal employed.

Many patents were taken out about the time of the last-mentioned improvement, but most of them were clumsy, ill-arranged, and inaccurate. There was a demand for a higher order of tool, and in the march of mechanical genius, the old square was doomed to be left behind. Equal to the emergency, Mr. Charles Bement, the inventor of many of the improvements in the modern square, came to the front, as an example of what thought and an aptitude for mechanical inventions could accomplish. His machines for doing the fine work on the steel squares are marvels of mechanical ingenuity. SARGENT'S SQUARE—THE ADVANCED SQUARE OF THE DAY—is made wider and thicker than the old square of the previous generation; the square of our boyhood, and the old method of hand work with a hammer, is no longer followed. Everything is done by machinery, in the most accurate manner. There are machines for grinding on a revolving stone to a smooth and perfect surface, and a perfect taper when required. There are machines for graduating all the lines, even to hundredths of an inch, with a perfection of a theoretical scale. There are machines for *lining*, that is, for running the parallel lines lengthwise on the blade. And all these different and complicated machines are automatic; they seem instinct with intelligence. They take the square and hold it to the revolving stone until polished to perfection. They hold it to the gravers' tool until every line is distinctly cut. They hold it in the great iron jaws of the stamp, that shut with a power of *two hundred and forty tons*, and every mark, every figure, line, and dot, is struck on the glittering steel face with the precision of a die. For instance, when a square is ready to be lined, it is laid on what is called a reciprocating bed, which holds it firmly, and a tool connected with the bed cuts a line. This reciprocating bed is on a frame, and by ingenious mechanism is made to go backwards and forwards in its true place by guides. On the bed is arranged a pair of parallel jaws, between which the blade of the square is stamped. There is an arm (one or more) extended forward and provided with a graving tool, ending in cutting points. These points are regulated by guides, adjusted by set screws, so that the lines are cut to the same depth, however the surface may vary. As the bed is moved backwards and forwards, the square is brought to these cutting points, and the lines are cut. A spring keeps the arms down to their work, or allows them to rise when the line is cut. The arm is raised by a cam-shaft and carried back clean of the work. So these cutters are guided in their work at every point, lifted up or depressed, thrown off and brought back, shifted in any direction, all by mechanism nicely adjusted. So also, an ingenious mechanism is arranged, by means of which a square can be held firmly, while a graving tool, moving in either direction, marks the lines, graduated with scale accuracy. By this machinery, all rules and squares can be lined, and graduated rapidly, cheaply, and with absolute precision. Another marvel of self-acting machinery is the grinding machine. In this, the implement, held to a reciprocating bed, rendered self-adjustable, is made to pass backwards and forwards beneath a revolving stone. It is fixed upon a plate, which is made to rise gradually and press against the surface of the stone. This graduation is so perfect, that when the plate has risen as far as it can, the square is perfectly ground.

[TO BE CONTINUED.]

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Unjust and Undeserved.

Slurs and insinuation are sometimes indulged in, directed against the capacities and qualifications of architects in San Francisco, because there are so many buildings in the city which, in general appearance and character of construction, are not evidences of skillful architecture. Particularly so in connection with those erected during the first ten or fifteen years of California's existence as a State. But the facts controlling their erection are not considered, although sufficient in themselves to quiet all unfavorable comment and criticism as far as the architects of to-day are concerned. The greater number of the "old constructions" remain, both brick and frame; and as compared with the more recently constructed edifices, are disgraceful failures. Many of the old low-story frame buildings are dilapidated, far behind present style, and some of them about as ill-contrived as can well be imagined, without the least shadow of attempt at beauty of design or finish. A considerable number of them have been remodeled, and some of the present pretentious residences are the shells of old houses, remodeled and transformed into decent homes, as far as decency could be worked up out of a bad base of operation. A great many have been moved from original sites of construction, and some of them more than once. But time is doing its work, and the past order of things yielding to the onward march of modern improvements.

The illustrations in connection with the early brick building are of similar character; the greater part being exceedingly plain, unskillful in design, and exhibiting no feature of architectural taste and skill. Those erected east of Montgomery street, in the filled-in district, not only fail in pleasing appearances, but were erected upon such insecure foundations that many of them have sunken in parts, are out of plumb, and if not supported by adjoining structures, present the appearance that they would tumble down. This, however, is not probable, as it is not so easy a matter to "throw" even a fractured and dilapidated edifice or wall.

But the fact is, that hundreds of buildings have been erected in San Francisco, in the construction of which there was no architect engaged. At one time, the almost universal sentiment was, that any sort of a building was good enough for California. But few owners looked to permanency of residence or business upon this coast, and buildings were "put up," not constructed in any proper sense of the term, under the impression that those who had them "put up" would soon hie away upon the wings of fortune to other places; hence neither beauty nor substantiality were considered. And when a change in the condition of affairs came, there had been so little to call into exercise architectural skill, that the number of competent architects were limited, and the difficulty of training public sentiment to adopt better methods, at increased cost of construction, was difficult. The dawn of improvement in architecture was hampered by the unwillingness of owners to pay the cost and value of better buildings; and it was only by slow degrees that matters equalized themselves.

But all this has passed, and substantial, well-constructed buildings are demanded; and it may truthfully be stated, that there is a goodly number now practicing the profession in San Francisco, and have been for many years past, fully competent to deal with the most advanced modern ideas in house construction. The main drawback being the absence of willingness on the part of owners to permit expenditures which would give full play to the better architectural talent of the Pacific Coast.

As yet, no marble, sandstone, or granite fronts adorn the street architecture of San Francisco. Brick, cast-iron, mastic, cement, etc., is the line of material used, even in the more pretentious structures, many of which are as beautiful as can be, with the materials used in their construction. But at the same time, it must be admitted, that many of the buildings erected in this city within the past ten or fifteen years, and have cost considerable sums of money, are far less than beautiful—overburdened and ungraceful structures, justifying the general remark and surprise that certain parties have managed to monopolize a large proportion of the "heavy buildings" who have not produced a *single admirable result*; while more competent men have been almost without engagements. Occasional mistakes and misconceptions are possible with every architect, but when grossness and clumsiness become the rule, surprise may well be entertained at the success of those who practice them, and also at the peculiar inducements and influences which lead otherwise judicious and far-seeing men to accept architectural bastardy for professional skill. All this, however, simply illustrates the fact that men of positive qualifications and abilities in all pursuits in life are often set aside, and preference given to others, whose principle force lies in the two sides of their face, commonly called cheek, and tongues full of deceit and selfishness; men who enjoy but a limited amount of those finer traits and qualifications, which, in those who do possess them, add credit and respectability to the pursuits in which they are engaged.

What Trees to Plant for Fuel and Timber.

The attention of our people in the older States is being properly turned to planting rocky ridges and worn out pastures with forest trees. This work is done by those having no expectation of cutting timber themselves, but with a view to improve their property for future sale, or for their heirs. These old pastures are now worth $10 or less per acre. Forty or fifty years hence, covered with heavy timber, they would be worth $300 or more per acre. Two elements may safely enter into this calculation of the profit of tree planting: the steady growth of the trees, and the constant increase in the price of fuel and timber. There is great difference in the price of the varieties of wood, but still more in the rapidity of their growth. Hickory grows more rapidly than white-oak, and in most markets is worth a quarter more for fuel. Chestnut grows about three times as fast as white-oak, and for many purposes makes quite as good timber. It is in great demand by the ship-builders and cabinet-makers. The chestnut, the tulip tree, and the hickory attain a good size for timber in twenty or twenty-five years, and the spruce and pine want about fifty years. The maples grow quite rapidly, and are highly prized, both for fuel and for cabinet purposes. On light sandy land, the white pine will grow rapidly, and cannot fail to be a good investment for the next generation. As a rule, the more rapid growing trees, if the wood is valuable, will pay better than the oaks.—*The Leffel Mechanical News.*

An Incident of the Recent Storm.—The *Bootle Times* reports that the stables in Dacre Street, Kirkdale, belonging to Messrs. Monk & Newell, contractors, were flooded by the downpours of rain, and a carter, opening a door to let out the horses, was confronted with a volume of steam, which he fancied was smoke. He immediately raised an alarm of fire, and two fire-engines soon arrived from Hatton Garden, City, for the purpose of extinguishing the flames. On gaining admission to the stables the firemen found that the steam had been thrown off from a sack of lime which was nearly covered with water.—*Timber Trades Journal.*

Distemper.

Ceilings and walls are often finished in distemper, but very often turn out unsatisfactory from the want of knowledge in the mixing and laying on. Absorption in the wall should be checked or stopped, or one part will absorb more color than another, and an uneven or spotty appearance results. Various preparations are used for preparing walls, and to stop absorption. One of these is to mix about a dozen pounds of the best whiting with water, adding thereto enough parchment or other size to bind the color, about two ounces of alum, and the same weight of soft-soap dissolved in water; mix well, and strain through a screen or coarse cloth. In mixing the distemper, one writer says, "two things are essentially necessary: clean and well-washed whiting, and pure jellied size." The whiting should be put to soak with sufficient soft water to cover it well and penetrate its bulk. When soaked sufficiently, the water should be poured off, which will remove dust from the whiting. It may then be beaten up to a stiff paste by the hand or spatula. Size is next added and mixed together. Care should be taken not to break the jelly of the size any more than can be avoided. Another caution is that distemper should be mixed with jellied size to lay on well; the color then works cool and floats nicely, but when the size is used hot, it drags and gathers, and works dry, producing a rough wall. A little alum added to the distemper hardens it, and helps to dry out solid and even. The best size is made from parchment clippings, which are put into an iron kettle filled with water, and allowed to stand twenty-four hours, till the pieces are thoroughly soaked; then they are boiled for five hours, and the scum removed. The liquid is then strained through a cloth. For mixing colors, the whiting and the color required, finely ground, are dissolved separately and then mixed to the required tint. For example, lamp-black mixed with whiting makes gray, and the most delicate to the darkest shades may be obtained. For French gray the whiting required is taken and soaked in water, and Prussian blue and lake, finely ground in water, are added to prodnce the necessary shade or tint. Buff may be made by dissolving in like manner, separately, whiting and yellow ocher. A little Venetian red gives a warm tone. A good salmon tint is produced by adding to the dissolved whiting a little of the same red, just sufficient to tinge. Drabs of various tints can be easily made by grinding up finely a little burnt umber, and mixing it with the dissolved whiting. The sooner the distemper color dries after being laid on, the better, and the best plan is to close windows and doors during laying, and throw them open afterwards.—*The Building News.*

Pearls.

With the exception of about $3,000 worth of pearls, which come from fresh-water mussels, and are found all over the Union, principally in the Miami River, Ohio, the American pearls come from the Gulf of California. These are as fine as any Oriental pearls, and are valued as highly. The fresh-water pearls are almost all small, but brilliant and somewhat rosy in tint. About half of the California pearls are black, and command a better price than the white pearls. Some years ago about 80 per centum of California pearls were black, the proportion having diminished rapidly during the last ten years. The largest pearl ever found in this country was the celebrated one found about twenty years ago in a New Jersey pond, and sold to the then Empress Eugenie.

Send for a copy of the "Steel Square and its Uses," handsomely bound and illustrated. Price 75 cts.

A "Good Foreman."

The necessity for a competent man to assume control and direction of all mechanical operations is well understood; but is not always the case that men *fully qualified* for the position can be found. Of those willing and anxious to assume charge, there is never a scarcity; but the mere act of exercising delegated authority in "bossing" a force of workmen, abstractly considered, by no means comprehends the duties and responsibilities of a good foreman. Men sometimes manage to secure the position who lack nearly every essential qualification, and are permitted to exercise authority over far better and more capable men than themselves. This fact may appear somewhat singular, but it is nevertheless true. Men of inferior parts frequently work themselves into prominence among their fellows through an unexplainable personal force of character, such as frequently facilitates successes in persons in common life in whom intrinsic worth and genuine merit are almost entirely absent. Many of the worst frauds that have trodden this "footstool of the Almighty" have achieved species of successes, and made themselves prominent, and sometimes world-wide notorious, by irrational and peculiar means; and so it often happens in the appointment of foremen, that parties are placed in charge of works, and empowered to order and direct operations, whose limited understanding and qualifications suggest their proper place as servants, rather than masters.

"Good foremen" are about as scarce as really honest men. All men are honest, judged by their own declarations; but how many are so beyond question? How many whose every act of life defies criticism in the *strict integrity* point of view? *Generally* honest, and *strictly* so under all circumstances, are two entirely different propositions. Of "good foremen," there are multitudes in every class of mechanical operations, if the testimony of each be accepted in his own behalf; but when measured by the rule of positive competency, the "shorts" far outnumber those of full measures. The mere fact that a man "is a driver"—i. e., forces the greatest amount of labor possible from those under him, and by a sort of brute force secures more than reasonable results for each day's operations—is a good foreman only in a selfish and ignoble sense. Such characters are in marked contrast with those who, by kind words and more gentle, reasonable, and proper influences, lead and induce others under them to "do their best" for their employers, by steady work and personal interest in matters generally, and especially those intrusted to their execution.

The doctrine asserted by some, that when a man assumes formanship his whole duty is pledged to his employer, is far from being strictly correct. We admit that this should be his first and chief purpose, but not at the sacrifice of the equitable rights of the owner, and those who are employed as workmen, or others who have interests involved. There is no theory or law, either divine or human, which justifies methods of operations supremely advantageous to one party, without any consideration of the rights of others. The law of right runs through and permeates every transaction in life; and no one is entitled to more than a fair and proper share of the benefits accruing. All this the good foreman understands and recognizes; and while he remains steadfast and faithful to his employer's interests, he also exercises due considerations in other directions, and acts fairly and justly to all parties.

A good foreman should be not only a good workman, understanding the principles, theories, and practice of his trade or calling, but should also be a well-versed student of human nature, ready and prompt to assert his own rights and those of his employer when encroached upon; but at the same time willing to extend civilities to others, exercising the spirit of forbearance when patience is required without humiliation, and in all ways proving himself to be the right man in the right place.

Good foremen are the essential arms of all industries, upon whom great responsibilities rest. Millions of millions of money are intrusted to their management and control in different parts of the world, and massive fortunes have been accumulated by persons and firms through the skillful management of good foremen; and thousands of cases of failures have resulted from the mismanagement of incompetent parties in charge. The foreman in many instances becomes the more valuable personage than the proprietors or "bosses." Great interests have been perserved from impending financial ruin through the wise and judicious management of competent foremen. In the house-contracting business, doubtless thousands of failures have occurred, and millions of coin been lost by workmen, material men, and others, through the incompetency of foreman. The wastage of material, loss of time in arranging and putting into execution details which should be easily comprehended and provided for, loss of time in correcting mistakes and miscalculations, tearing down and re-executing things improperly done, frequently foot up an amount far in excess of all conceived contract profits; and this often repeated, even on small jobs, must result in failure, sooner or later. It matters not whether the "foreman" is an employed party, or the contractor personally acting in the capacity, the appplication is the same in either case, as far as results are concerned.

Kentucky's Biggest Tree Felled.

A gigantic tree has been chopped down near Carr's, Ky., that was probably the oldest and the largest in Kentucky. It measures 18 feet in diameter at the root base. The cut was made 6 feet above the ground, where its diameter was at least 12 feet, and its circumference 36 or 37 feet. From the cut to the first limb can be made eight good length rail-cuts, each 10 feet long, which would split enough rails to fence a small farm. The first limb was nearly a half-dozen feet in diameter, and it would have, by itself, made a very large saw-log. Nearly all the small limbs had fallen and decayed away. Its plank measurement is computed at nearly 50,000 feet, besides several limbs that would make, altogether, 25 cords of wood. On the day of the felling a large concourse of people marched from Vanceburg to the place. Col. W. S. Rand, an able speaker, was the orator of the day. He, and others qualified to be good judges of such things, supposed that this mighty forester was four or five centuries old. There were to be distinctly seen over 300 rings, and it is not known how long since it completed its growth, as it has been dead for many years.—*Correspondence of the Louisville Commercial.*

Mr. Charles Salkeld, foremen painter at the locomotive shops of the Lake Shore road, at Elkhart, Ind., uses a dryer that enables him to put on two coats of lead in a day. He can paint a tank and engine in two days, varnishing and lettering included; and the paint wears better than when put on in the ordinary way and many days given it for drying. In dry weather he can even put on a coat of white lead every hour, and have it a good wearing job when finished. He also uses a transparent filling for wood, which wears after being varnished as well as paint, with the additional advantage of showing the natural grain of the wood; and furthermore, he can, by a peculiar preparation, give to any varnish greater elasticity, and a gloss that will stand longer than that of ordinary varnish, and without cracking. His work is an actual demonstration of this.—*The National Car-Builder.*

The Lumber of the Future.

The increase of population causes the denuding of land which may be cultivated, and while it augments the demand for building material, it reduces the supply. A proper system of arboriculture may, to some extent, mitigate the inconvenience of a want of timber, but it has long been apparent that other material must eventually be introduced to take the place of wood. Scientific discoveries and mechanical contrivances have brought many things into use whose value was formerly unknown. It has been shown that the most durable car-wheels may be made of paper, and any one who has noticed the strong and substantial articles which are made of "paper-mache" will readily perceive that light materials may be converted into very dense substances. A scientific cotemporary declares, that in future years timber will be made of straw, and the article below gives the results of some experiments which have been made to test its value. It is as follows:

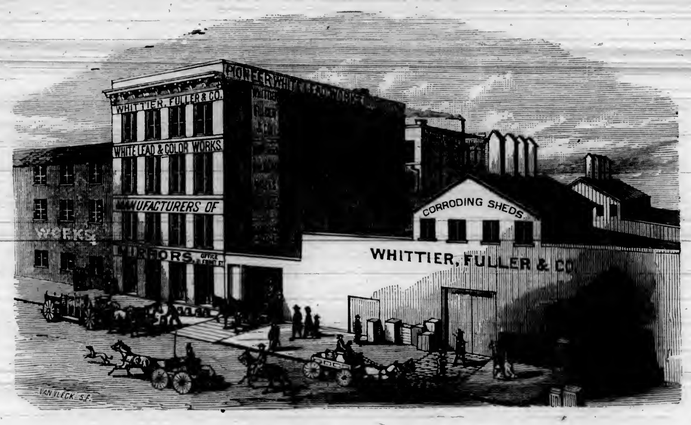
"The lumber of the future is to be made of straw. It is to compete with that of the better class, as there seems to be no necessity of introducing knots and shakes into the artificial material. It is manufactured in any desired lengths, from 12 feet upward, and as much as 32 inches in width. The cost is such as to compete with better or finishing grades of pine, and the locality of competition cannot vary much, for straw is usually cheap where lumber is cheap. Some samples recently exhibited held a nail as well as wood, are susceptible of high finish, and can be polished to any extent desirable. It is waterproof, and therefore must be durable as pine or oak, while it is as well adapted for roofing purposes as for fine interior work. It is susceptible of being worked by the ordinary tools of the carpenter, and once fitted for its place it will not be apt to shrink or swell. Samples resemble hard wood, about as dark as oak, but more dense in texture, with a specific gravity of one-fifth more than thoroughly seasoned black-walnut. For finishing, it will not be required to be as thick as ordinary lumber, as its tensile strength is about double that of wood. The future will introduce a complete change in building materials. These will include paper for doors and window frames, floors, moldings, and roofs; glass for porches and pillars, cornices and walls; iron for beams, joints, and rafters, with not a splinter of wood in the whole construction, which will be replaced with straw lumber, if needed."—*The Philadelphia Commercial World.*

Hard Putty.

The *Carriage Monthly* gives the following for a hard putty that will dry in one day: Take the whitening, mash all the lumps out on the stone, and mix it into a stiff paste, by adding equal parts of japan and rubbing varnish; then add as much keg-lead as you think will make it work free with the knife; then add the rest of the whitening until you have it to suit you. This will sand-paper good with one day's drying. If you want putty that will dry quicker, take dry white lead and mix with equal parts of japan and varnish, to which add a few drops of turpentine. This is very soft for puttying, but can be sand-papered in from two or three hours, it becoming perfectly hard in that time.—*The Leffell Mechanical News.*

A Troy mechanic has brought out a steam whistle that goes entirely around any imaginable chime, and discounts the best example of a calliope. The sanguine inventer claims that it gets entirely away with all known musical scales, and discourses all sorts of music. It is said, however, that disinterested but unappreciative neighbors intimate a willingness to dispense with it for a small consideration.—*American Machinist.*

PIONEER WHITE LEAD WORKS.



What is required to institute and carry to a success a manufacturing enterprise? Nature is generous with her gifts; but she forces man to the exercise of his endowments, to develop them, and give the substance a form for his appreciation and enjoyment.

The very many natural resources of this Coast are marvelous, and they impress all thinking visitors with the conviction of a great future. With but few exceptions, these wondrous gifts of Nature are at present but mere curiosities, and are spoken of and written of only as such—with prosy theories on their practical value if utilized.

To the business man, scientist, or to the practical thinker who comes amongst us, it is a matter of surprise that our people, with their wealth, do not develop these resources, and build up our coast with a working and useful population, instead of pursuing the selfish course they are now, which is that of the usurer.

Our capitalists and business men are blind to their own interests, in not interesting themselves in the establishment of manufacturing enterprises, which will secure for them a certainty of fair returns for their encouragement.

The people of this Coast cannot afford to let existing opportunities lie idle, *as a dependency on foreign sources means our impoverishment. Manufacturing guarantees the reverse, as it furnishes employment to, and retains among us, consumers,* that vital quantity in a progressive and permanent prosperity.

We have much pleasure, however, in being able to refer to some notable exceptions to the general apathy of our business and moneyed men.

Heading this article will be seen an illustration of the results of the energy and public spirit of one of the leading and pioneer mercantile firms on the Pacific Coast.

Messrs. Whittier, Fuller & Co. several years since commenced the manufacture of White Lead in this city.

They purchased ground on Fremont street, between Howard and Folsom, covering a surface of 137 6-12x275 feet, and thereon erected factories and sheds, for the purposes of the business.

Their whole works, machinery, and appliances, are on the most approved plans, and excel in detail and completeness those of any other White Lead factory in the world.

This is essentially a *home institution, from the ground through to the finished product of their mills.*

Few can realize the importance to the whole community of this enterprise.

In the first place, it encourages the development of our mines, as all the pig lead used is the production of our own coast.

It thus gives the Miners employment.

As all lead ores have to be smelted to get the metal,

It thus gives the Smelters employment.

The transportation from the producing points invokes aid of the carriers:

It thus gives Teamsters and Transportation Companies employment.

A very large quantity of oil is used in the grinding of the lead. All this oil is crushed from seed raised in this State.

It thus employs the Farmers.

All the pots used in corroding-sheds are made here.

It thus gives employment to the Potteries.

The maintaining of a factory requires the services of machinists, millwrights, and laborers:

It thus gives employment to an Army of Operatives.

And in fact, everything in and about the works is of home manufacture. *Now, what does the employment of the many branches of industry hereinbefore enumerated demonstrate?* This fact: that as they are *all consumers,* their wants *engage every business* on the Coast to supply them.

The product of the

Pioneer White Lead Works

Is not excelled by any other make in the world. It is guaranteed *strictly pure; it is white, very finely ground,* and has *superior body* and *covering properties.*

The manufacturers announce their determination to always offer it to consumers at less prices than any imported brands.

As against the imported, there would be great economy in its use, even at equal prices. All painters know that White Lead that has been packed any considerable time loses a great deal of its vitality, in the absorption by the kegs of a considerable quantity of the oil; leaving a hard mass in the keg, involving time and expense in its extraction and working up for use, and a costly addition of oil.

The Pioneer being all freshly packed,

all this expense is avoided.

We know what the White Lead is, and we have no hesitation—in fact we take pleasure—in recommending our brother architects to write it in their specifications and to *insist on its use: first, on the score of quality; second, economy; third, the general benefit to all of us.*

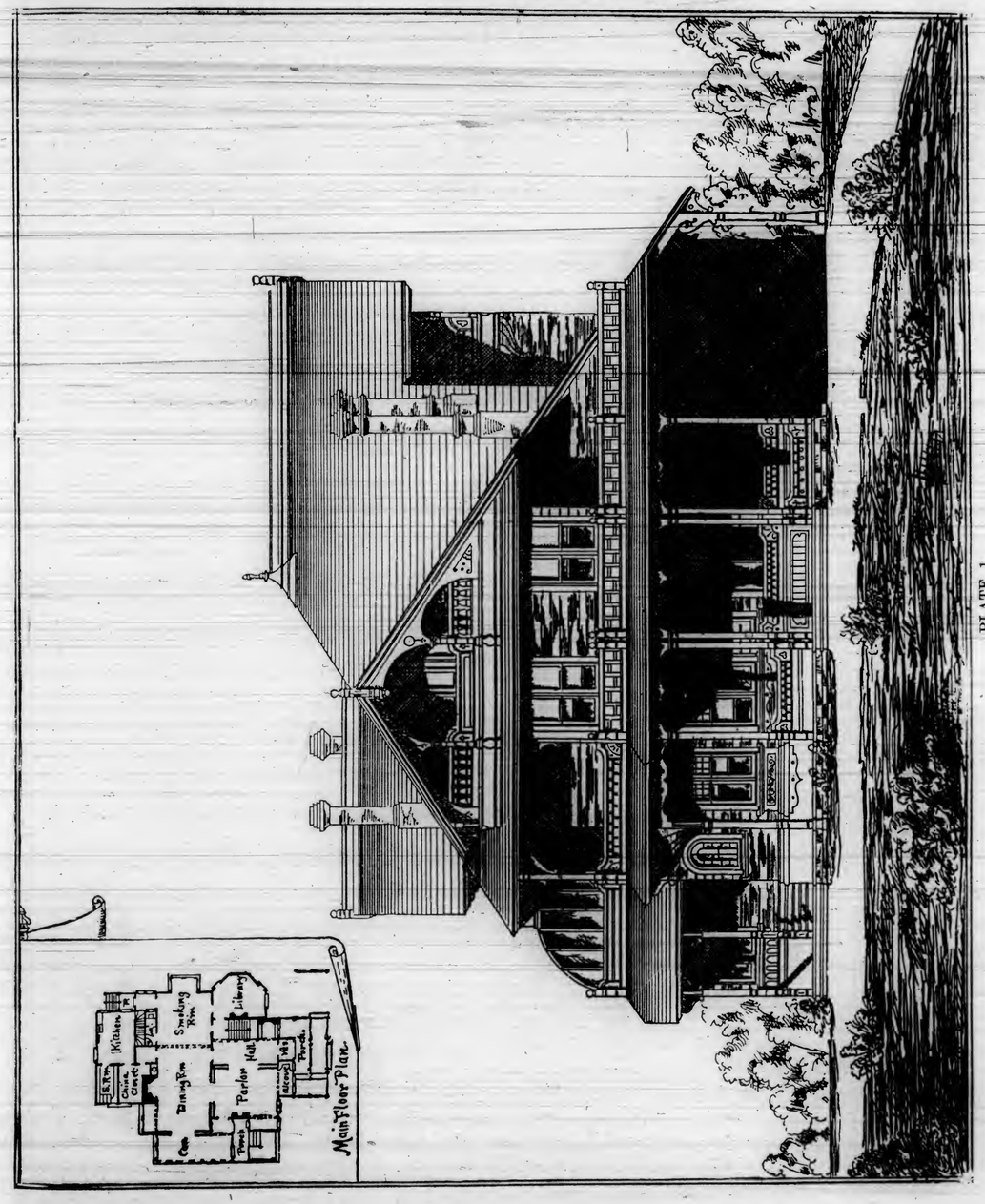
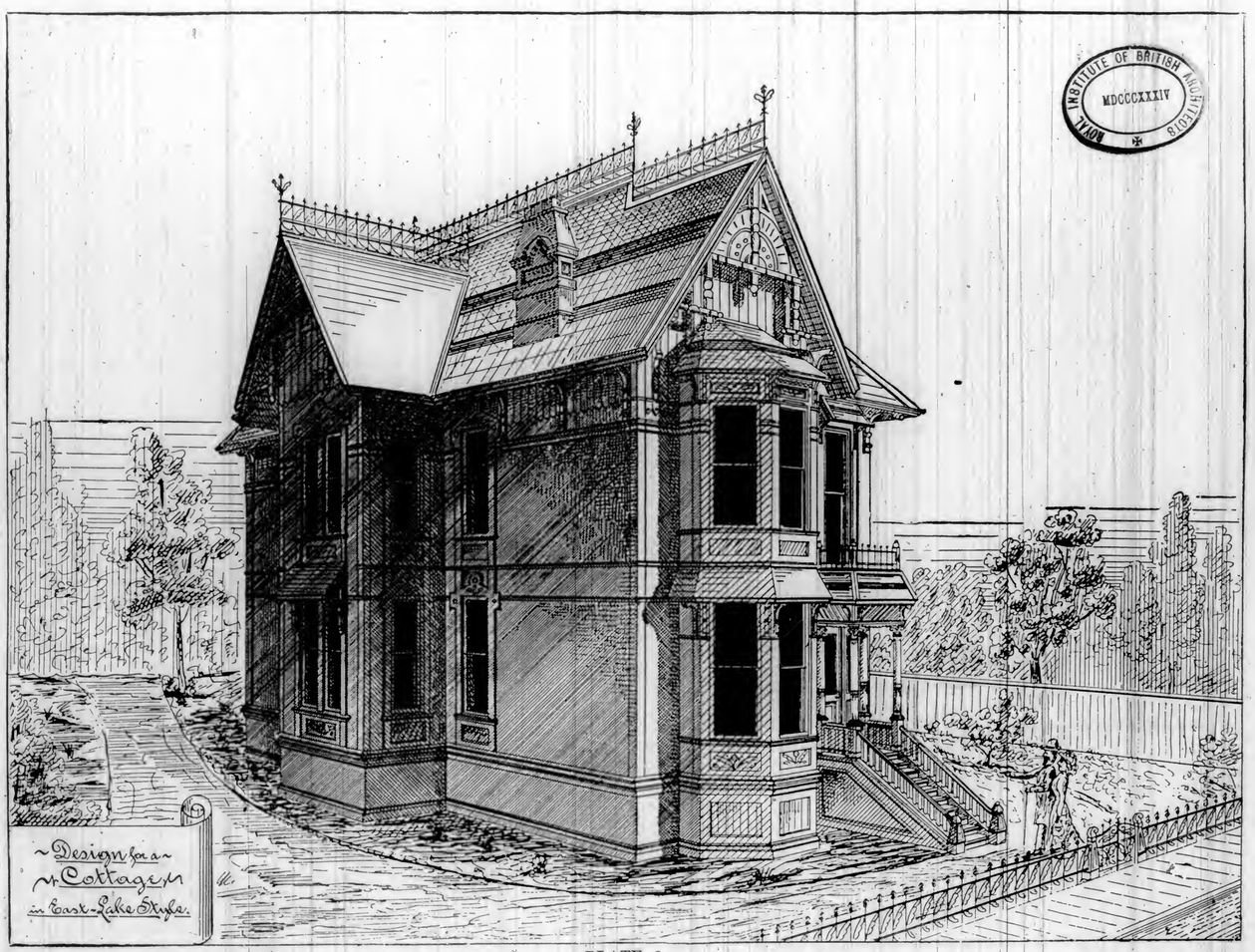


PLATE 1.



ROYAL INSTITUTE OF BRITISH ARCHITECTS
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PLATE 2.

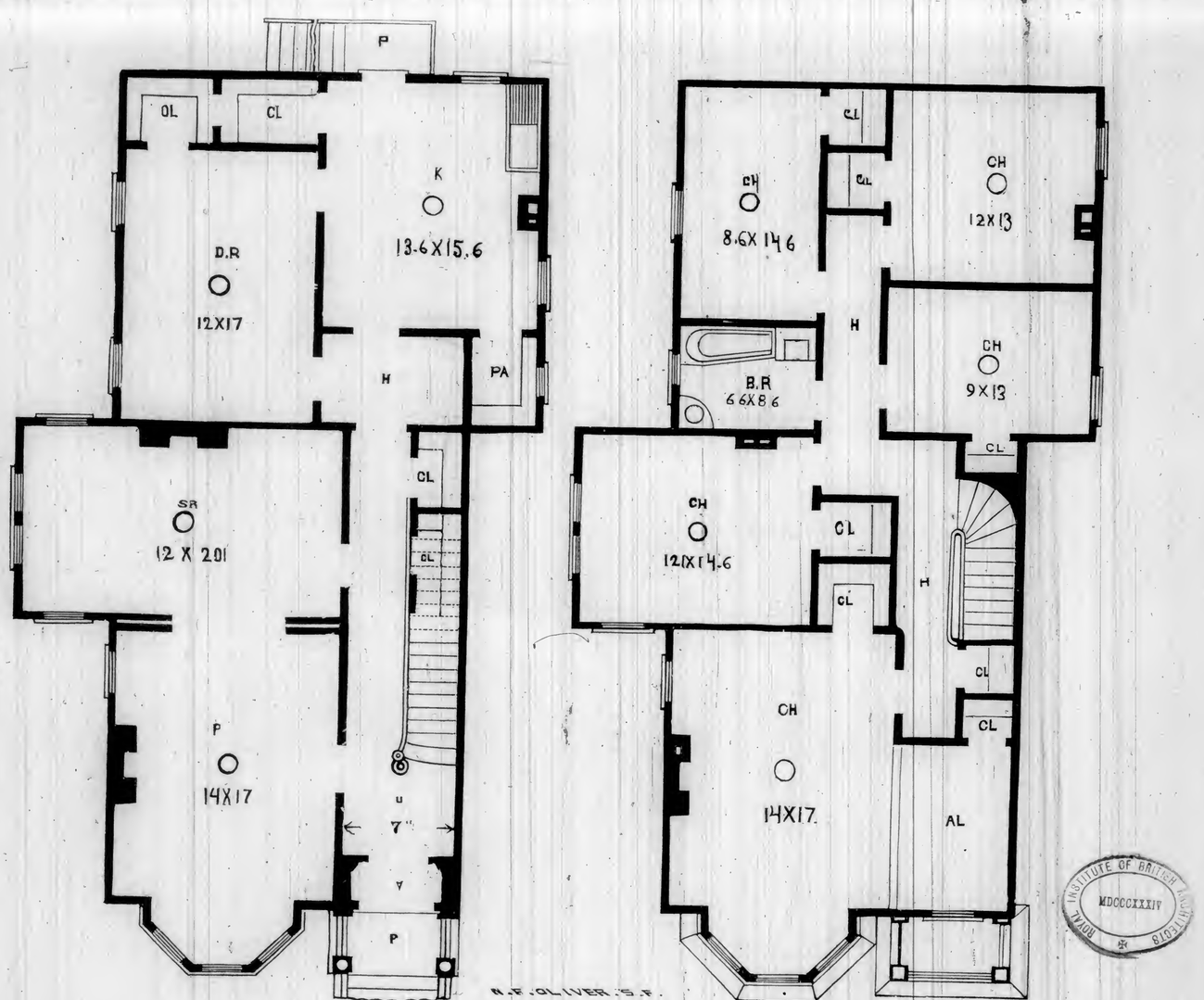

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PLATE 3.

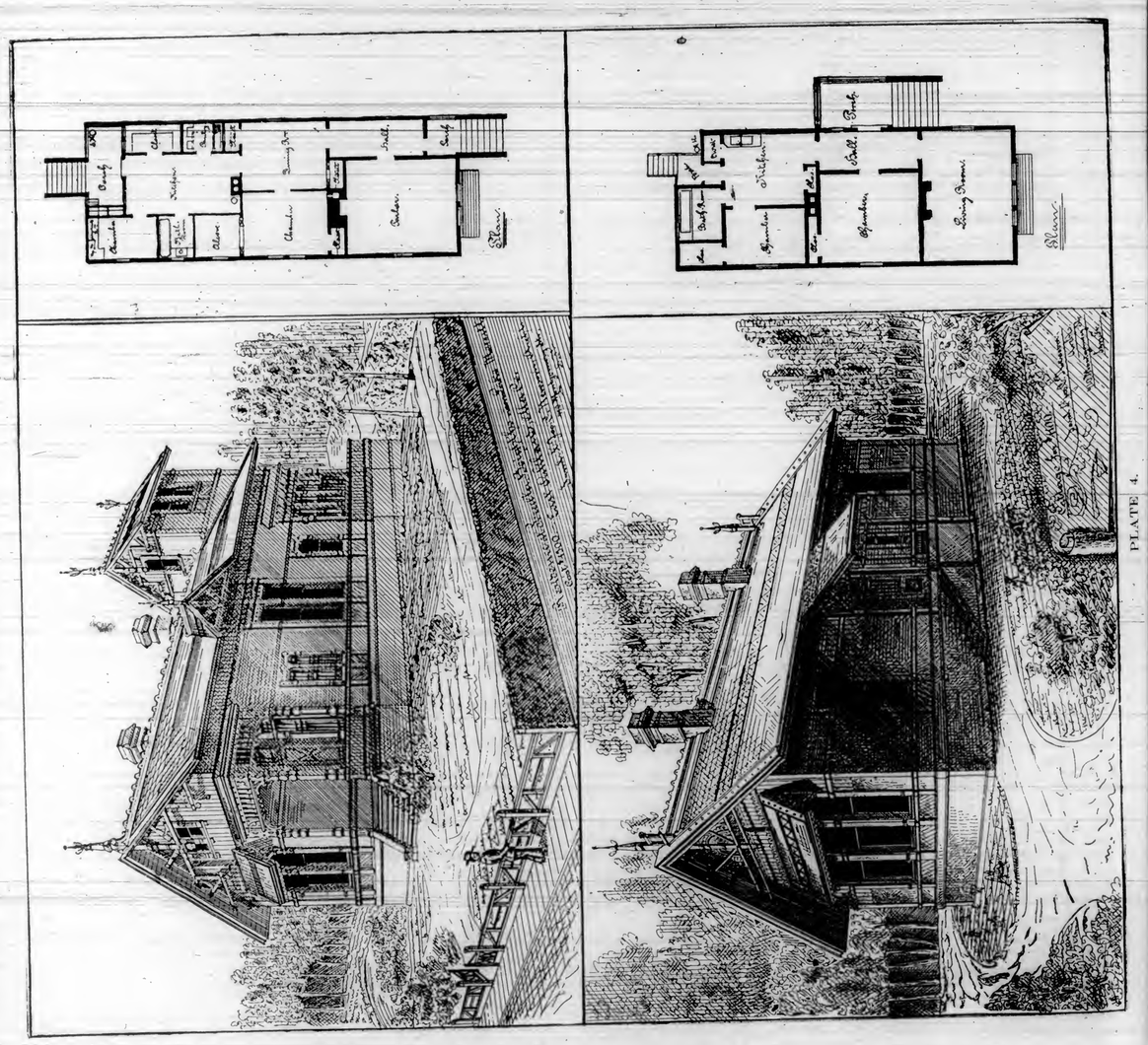

PLATE 4.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

BUSINESS MANAGER OF ARCHITECT:—Will you please tell me through your JOURNAL the best way of removing stains from pressed brick?

G——, San Jose.

ANS.—Turpentine, vinegar, and acids are generally used by bricklayers. Strong vinegar, from its cheapness and acidulous properties, is as good as anything else for the purpose mentioned.

BUSINESS MANAGER OF ARCHITECT:—In pasting scraps in my books I notice that gum arabic sometimes renders the print illegible. Can you tell me the cause of it? L. A. R.

ANS.—Because it renders the paper transparent, and therefore the print is illegible.

EDITOR CALIFORNIA ARCHITECT:—Can you give through your columns a recipe for preventing drawings made with a soft pencil from being "*smutted?*" It would greatly oblige the inquirer, as well, I think, as many others. —

ANS.—We intend to adhere strictly to our rule not to answer anonymous questions. If the writer of the above will refer to our back numbers he will find the above question answered.

BUSINESS MANAGER OF ARCHITECT:—I noticed in the paper last week that a joist 3 inches thick, 12 inches wide, and 16 feet long, when set on its edge, would support 16,000 pounds; and the same piece of timber when placed on its side would support 3,850 pounds. Will you please give me a rule for arriving at this result?

LUCIUS B., Sacramento.

ANS.—Evidently the timber referred to was not redwood. We suppose the weight used was placed in the center. If so, the rule is as follows: Multiply the square of the perpendicular by the horizontal, in inches, at the center, and that product by 600; then divide by the length, in feet, and the quotient will be the load, in pounds, at the middle of the timber. If the load is nearer one end, the same stick will support a greater weight, and the strain will be in proportion to the product of the two ends of the stick, measured from the point where the load rests.

BUSINESS MANAGER OF ARCHITECT:—I think others beside myself, on these Islands, would be much interested in a description of the process to polish woods. Will you kindly explain the method of so doing in your "Everybody's Column." E. M., North Kohala, H. I.

ANS.—First have your wood perfectly smooth. This can best be done by the use of an iron plane, set very fine. Finish with the scraper, which is merely a thin plate of steel set in a piece of wood. Then use sand paper until the work has an even surface; reduce the lines produced by its use, by using the finest sand-paper, marked 00. After this, rub over with a bit of flannel dipped in linseed oil, and allow to dry. Repeat the oiling, and set the work aside for a day or two, until the oil is fairly absorbed. If the wood is porous, it must be *filled;* and for this, use whiting, colored so as to resemble the wood, and kept dry. Rub the wood with linseed oil, and then sprinkle it with whiting. Rub the latter well in, wipe it off carefully, and give time to dry. For the polish take alcohol (95 per cent.) ½ pints; shellac, 2 drams; gum benzoin, 2 drams; put in a bottle, loosely corking it, and stand it near a fire, shaking it occasionally. When cold, add two teaspoonfuls of poppy oil, and shake well together. This polish should be applied by means of a rubber, and *not* by a brush. Lastly, wet a linen cloth with a little oil and alcohol, without polish, and rub till dry. Remember: Keep the rags clean; as the polish depends, in a great degree upon keeping everything free from dust and dirt. To insure success, the work must be done in a warm room, free from dust. Of course E. M. will find that it will take considerable practice to polish woods nicely.

The same correspondent wants to know "how to measure trees standing in the forest" He fails to state, however, whether he wants to find the hight of the trees; or a method of measuring the amount of lumber in a standing tree, or —in fact, the question is too indefinite. We wish all our correspondents would remember the instructions at the head of this column.

"O, give me anything made with beans!" exclaimed a Boston man, taken sick in the West, when asked what he would like to eat. They complied with his request They gave him castor-oil.

The following is a recipe for a perfume, the odor of which will be retained on the handkerchief, even after it is washed: Extract of rose, 4 ounces; tincture of ambergris, 8 ounces; tincture of musk, 2 ounces; extract of vanilla, 1 ounce.

To protect lead pipe from the action of water, form on the inside surface an insoluble sulphide of lead, by filling the pipe with a warm and concentrated solution of sulphide of potassium or sodium. In fifteen minutes pour out the solution and allow the pipe to dry.

Mechanical Enterprise.

At 4 o'clock Tuesday morning, September 15th, a fire broke out over the cupola in the upper story of Bussey & McLeod's stove foundry at Troy, N. Y., which destroyed the nickel plating and mounting departments, a loss of probably more than $50,000. While the firemen were yet fighting the fire in the rear of the buildings, which are all connected, the firm were shipping stoves as usual at the front. The contract was let for the new buildings, and the contractor had lumber delivered, the morning of the fire. Work was commenced the same day in New York City on the electrical apparatus for nickel plating, in addition to which the firm had found time to issue a circular to their customers, notifying them that business would be fully resumed within two weeks. The next morning fifty men were removing the smoking ruins, and the contracting masons were busy excavating for the foundation.—*American Machinist.*

The earnings of 41 railroads in this country, on a mileage of 32,119 miles, for the month of June, were $18,058,006, against $13,068,485 last year, when the number of miles operated was 28,606. From January 1st to June 30th the earnings of 43 roads aggregated the enormous sum of $102,171,690, a gain of nearly $12,500,000 as compared with the same period in 1880.—*American Machinist.*

Our Illustrations.

Plate 1 represents an original design and plans for a picturesque residence, in harmony with styles largely adopted in the Eastern States for country and river-side homes. Its peculiar features will be by some considered elegant. By careful treatment in its constructive delineations, great effect and large conveniences may be secured.

Plates 2 and 3 are the design and plans for a comfortable nine-room cottage in the Eastlake style, beside bath-room, and ample closet accomodations.

Plate 4 represents two one-story cottages in same style, by Newsom Bros.

The cost in either case depends upon the character of materials used, the manner of construction, the class of workmanship employed, and the elaborations adopted; all of which considered, will vary the cost of construction from five to one hundred per cent. Parties contemplating the erection of building of any character, will best conserve their own interests by employing experienced and competent architects, rather than being led away by the random statements of parties wholly incompetent to plan or direct the construction of any class of building in a proper manner, and never within the amount proposed by them; for instance, in one case known to us, the owner was assured that the total expense of the building would not be more than $5,000, but the final footing up reached nearer $14,000.

Spontaneous Growth of Forests.

A writer in a West Virginia paper combats the opinion held by many arboriculturists, that an open country is never converted into a forest through the operation of natural causes; and as establishing the fact that such change does sometimes occur, brings forward the case of the Shenandoah valley. When first settled, about 160 years ago, it was an open prairie-like region, covered with tall grass, on which fed herds of deer, buffalo, elk, etc., and having no timber, except on ridgy portions of it; but, in consequence of its settlement, the annual fires were prevented, and trees sprang up almost as thickly and regularly as if seed had been planted. These forests, having been preserved by the farmers, cover now a large part of the surface with hardwood trees of superior excellence. These facts would also seem to substantiate the theory that the treeless character of the prairies of the West is due to the annual burning of the grass by the Indians.—*The Leffel Mechanical News.*

How Sleigh Bells are Made.

It has no doubt been a mystery to many how the iron ball inside of sleigh bells got there, and it is said to have taken considerable thought on the part of the discoverer before the idea struck him. In making sleigh bells the iron ball is put inside a sand core, just the shape of the inside of the bell. Then a mould is made just the shape of the outside of the bell. This sand core, with the jinglet inside, is placed in the mold of the outside, and the melted metal is poured in, which fills up the space between the core and mold. The hot metal burns the core so that it can be shaken out, leaving the ball within the shell. Ball valves, swivel joints, and many other articles are cast in the same manner.—*Haney's Journal.*

In London, as well as in New York, Chicago, and Boston, the past year has been one of great activities in building operations. According to the Metropolitan Police, in the *Builder*, the number of houses erected in the city of London, in 1880, was 24,945. Seventy miles of new streets were placed under care of the police during the year.—*American Architect.*

The Best White Lead.

Among the several brands of No. 1 white lead, none ranks higher on this coast—and deservedly so—than the "Pioneer," manufactured by Whittier, Fuller & Co., at their extensive "*Pioneer White Lead Works*" in this city. It has now been on the market and in daily use by all painters for so long a period, that its genuine qualities as a superior paint is fully established. We have used it extensively in our practice as architects, and have not found it in any case to fail in giving entire satisfaction, either in appearances or durability. And being a California production, and of as good quality as the very best produced in either the United States or England, should secure its universal use in California, at least, for local reason, as well as for its excellence in quality, and upon merit, wherever it is offered for sale.

Better Times Ahead.

[From Magee's Real Estate Circular.]

"If one were to judge by the number and value of real estate sales made in September, the conclusion would be reached that it had been a very dull month in land transactions. But the facts reveal a different state of things. Last month was really one of the best months, both for actual sales and active inquiry, that has been known for several years. It was especially remarkable and hopeful in this, that advances were offered for a larger number of properties sold in it than in any month for at least six years. We know of six cases where advances have been offered for properties which have either been recently sold or have been for sale at lower rates than those now asked. This is cheering, it must be admitted. We note, too, for the first time in several years, quite an increased activity in fine residence lots; the north end, with a view of the bay, having for the moment the preference. We would like to call owners' attention to the fact, that the present is not a good time to force property on the market. Patience and holding stiff for firmer prices is now needed. There is an increased demand for inside, paying, well-improved business property. There is very little of such property for sale. The total number of sales made in September was 192; value, $625,685.

"Any one who invests in city, small town, or country land in California, within the next two years, or any one who engages in manufacturing here, is more likely within the next ten years to make money than at any time within the past twenty years. The State is bound to go ahead very fast for the next five or seven years. We are to have blue times and depression no longer. The signs all point to better times. The progress made in manufacturing, fruit, and grape growing, cattle and sheep raising, and, above all, in railroad building, will astonish even the most sanguine within the next few years. Hundreds of investments and openings in both city and country, now neglected and despised, will soon be seen to have had very large profits in them. We repeat now, what we have more than once said before, that if capital is not safe in this city and State, we doubt that it can be made safe anywhere."

The *Circular* is very emphatic in its comments upon our street railroads, properly praising the California and Geary street cable lines for their almost elegant carriages and dummies, and the creditable management of the roads. The Sutter street line is mentioned as one of the neither-one-thing-nor-another affairs, as far as the construction of the roadway is concerned. This is true. It was built by a man possessed of great energy of character, but one of the most economical managers on earth, as to first cost of everything done by him, without any consideration of the worthlessness of shoddy makeshifts. Consequently, the entire road will, in time, have to be taken up and be reconstucted in a proper manner. The Turk street line of horse-cars is denounced in plain language, for its half-dead, spavined, worthless horses, and general incompleteness. But it fails to mention the Howard street omnibus line, perhaps because it considers it too worthless and wretched to be worthy of notice. We say from daily experiences, that it is unquestionably the worst managed road in San Francisco, and can display a more dilapidated, broken-down, balky set of horses than any other stable in the city; while for coarse, ungentlemanly drivers and bad management, it leads all other roads, exceptions being allowed for an occasional civil man at the reins. The cars are fearfully unhandsome, clumsy, and strongly odorous; and the dumping of transfer passengers at Third and Howard street in a puddle of horse urine, deposited by the horses on the "stand" of the outgoing branch or side of the road, to walk 50 to 75 feet over a rough cobble street, to reach the crossing leading to the transfer car, when one strangely happens to be on hand, is an outrage upon the traveling public.

The New York Building Law, recently signed by the Governor of that State, is before us. The "text" occupying eight columns of the *Real Estate Record*, equal to nine columns of this Journal. It contains 42 sections, and provides many judicious restrictions and safety regulations in the erection of buildings of any character. The *Record* says: "Under the old law, the department was forced to serve a personal notice upon the owner; before the latter was bound to make needful changes in his buildings, or put fire-escapes on his buildings, according to law. This sometimes was impossible. Hereafter, if the owner cannot be found, all that is necessary is to post the notice on the building. If not attended to, the legal penalty can be enforced, or the department itself can build the fire-escapes, charging it against the property. In other words, the Building Department has the same power which the Board of Health has weilded in providing for the sanitary health of the city."

"It must be confessed that the new law is not all that it should be; it is defective in many important particulars; but it seems to be impossible to get a thoroughly efficient law through an Albany legislature. Still, every amendment is for the better."

One of the provisions is in reference to dwelling-houses "*one hundred feet in hight, and over.*" Special attention has been paid to the avoidance of wood partitions for bearing purposes, and the introduction of iron columns and iron girders to sustain the weight of floors. The spans between bearings are carefully defined, and restrictions placed upon the *do-as-you-please system of construction.* The law is too voluminous to permit a detail review of all of its provisions in this Journal; but it provides the text for the framing of a law by some future California legislature, whenever it shall be possible to have assembled at Sacramento a body of intelligent, practical-minded men as law makers, who will consider the public interest of more importance than schemes for personal aggrandizement and profit, with considerable "public plunder" thrown in.

We hope the time is not far distant when a good, sensible, and practical building law, and plumbing and sanitary laws will be enacted in this State. They are all greatly needed, and cannot be too soon created. San Francisco can boast many elegant and substantial buildings within its limits; but it must be confessed that there are many fearful shams—buildings, in the erection of which the economies have been whittled down to their finest point, without much regard to permanency or security. Consequently, a necessity exists for such regulating and controlling laws as will compel the proper construction of buildings.

We have city ordinances which propose to govern methods and manners of construction; but in effect they are almost entirely inoperative. Scarce an architect in San Francisco gives even momentry consideration to their provisions, and thousands of things are done every year which are in direct violation of municipal enactment. We have from time to time noticed flagrant violations, sometimes resulting in the stoppage of the work for the time being, but some how or other, the ordinances have always been nullified or compromised in such cases, and the parties allowed to proceed, except such as have been obstinately unwilling to make compromises upon a *cash* basis. What is needed in this State, is a general law, formed by intelligent, competent, practical men, who fully understand the correct principles and science of construction, and a supervising board or commission to enforce compliance with such provision as might be established by a wise, judicious, and practical building law.

Many generations passed away, before the necessities for such a law became apparent in New York. We hope that less than *years* will be substituted for *generations* when the "Golden State" will have enacted one of the best and most practical building laws in existence.

The Lumber Question.

At no very distant day the growing scarcity of lumber will lead to a much wider use of iron and steel. Iron could now be profitably used where lumber is, to a large degree, but abundance and present cheapness are the lame excuses for a savage destruction of the mighty forests, which, when once gone, are virtually gone forever.

At no time in our history has there been such an enormous consumption of lumber. During the season just closed, six billions (6,279,950,000) feet of lumber have been felled in Michigan, Wisconsin, and Minnesota. The logging this coming season will reach seven and a half billions. The available supply in those States is eighty-one and a half billions feet, or a twelve years' stock. Michigan lumber has been shipped to Maine, showing the resources of that State are almost exhausted. Southern pine is advancing, supplies of spruce are light. A general advance in lumber is thought extremely probable, in view of all these facts. They point unmistakably to the increased use of iron and steel. The probability of this is strengthened by the economies which are being introduced in iron production through new processes and inventions. Lumber must necessarily advance in price, and iron and steel must as necessarily decrease in cost, until, at last, a meeting place will be reached, which will stimulate the application of iron and its products to many purposes now dependent for supply on lumber alone. For endurance, safety, beauty, and economy, iron must sooner or later drive lumber out of active competition, and thus open up a far wider demand for the products of founderies and mills. —*Journal of Industry.*

A new ballot box has just been submitted to the French government. It has two locks, each opening with a different key, and an apparatus which clips a stub or corner from the ticket deposited by the elector, and drops the stub into one part of the box, the ticket going into the other division. Simultaneously the machine registers on a tablet before the voter the number of tickets clipped. The ballots must agree in number with the stubs, and both with the "tell-tale," and the voter sees for himself that his ballot has been cast and taken account of.—*Leffel Mechanical News.*

Architectural Competitions.

VI.

We have thus far discovered nothing to modify, but much to strengthen and confirm, the position assumed adverse to architectural competitions.

Numerous cases might be related, in which *attempts* at fairness, and purposes to avoid injustice to competitors have appeared, but it is so nearly impossible to attain these conditions perfectly, that it is safe to assert that absolutely right, just, and equitable procedures seldom occur.

We will refer to a case of present or recent occurrence directly in point, in which the competitive drawings were to be submitted on the 1st inst. In this case, advertisements were inserted in one or more class journals of large large circulation, by which means the invitations to compete were extended to every State in the Union, and presumably, to every city and town of any importance; in fact, every architect in the United States was invited to join in the contest.

The case referred to is that of the "Watkin's Institute Building." The advertisement reads in part as follows. "Designs for a block of buildings to be known as the 'Watkin's Institute Building,' to be built at Nashville, Tenn., will be received by the undersigned until the 1st of October, 1881. The character of buildings contemplated are as follows: 112 feet on Church street, by a depth of 245 feet, 9 inches, with a grade in the lot of 21 feet, 5 inches in the 245 feet, 9 inches. The plans to contemplate a block of stores four stories high, with tower additional."

"In the rear of the 'front block' is to be a separate building, 75 feet by 112 feet, intended for library and reading-room on first floor, and public hall and lecture-room on second floor. The front block to be used for store purposes, with all necessary accesses, flues, fireplaces, drainage and sanitary appointments.

"The number of drawings required—floor plans for each story, front elevation and sections, traverse and longitudinal drawings, sufficient to delineate all parts in full."

"The plans accepted by the commission to be retained, and all others to be subject to the casualities of loss or destruction, to be returned *upon the request* of their authors, *provided* they have been enclosed in *mental or strong paper four inches in diameter.*

"The cost of the entire improvements, including all the buildings, not to exceed $80,000."

For all this the "commission" propose to pay the magnificent sum of $300 for the best plan, No. 1; $125 for No. 2; and $75 for No. 3.

To our view of the case, the propositions presented in this case are an insult to the architectural profession of the United States. Yet it is but little in excess of numerous others in its absurd and unfair requirements; and we cannot believe that any qualified architect, not enjoying *special understandings* with the commission, will give or has given countenance to anything so pregnant with unfairness as complying with the invitation to compete.

The probabilities are, that the gentlemen interested in the matter are intelligent and just men in their special positions and callings in life; but they have certainly undertaken, in connection with the "Watkin's Institute," something far beyond their capacities in fair and equitable dealings.

1st. The limit of $80,000 is too small, judged by any standard of building values known to us, provided good materials, substantial construction, fair workmanship, and skillful architecture are required.

2nd. The compensation offered amounts to but little more than *one third of one per cent. for No. 1,* about *one sixth of one per cent. for No. 2,* and about *one tenth of one per cent. for No 3*—prices at which no respectable or qualified architect would render services—an amount, even for No. 1, scarce equal to the cost of journeymen draughtsmen's wages. The scale of prices established by the profession generally, and recognized as just and fair, are strongly in contrast with the "commission's" opinions of values for architectural services—being one per cent. for *preliminary drawings*, which means no more than sketches or unfinished drawings, which would amount to $800 in the case under consideration, if the submittal was confined to that class of drawings. But the drawings required are of a class which, according to the scale, comes within the 3½ per cent. rates, without specifications, which would place the amount at $2,800 on the $80,000 fixed as the cost of the building.

These facts simply illustrate the enormity of the wrongs imposed, or sought to be imposed, by those seeking competitive drawings. It is not a sufficient excuse to say that "no one is obliged to compete," when offensively mean propositions are put forth. There are rules, or should be, governing all values, whether personal services, or goods and merchandise; and those who go beyond these, and seek to obtain more than is right for their outlay, transcend the bounds of fairness, by seeking to subjugate the rights and equities due to others by the pressure of opportunities presented.

The case in point, with which there are innumerable parallels, exemplifies the boldness with which men enjoying honorable positions in communities will do unjust things—acts which, if of similar unjustness were extended to them, would be resented as insulting. There is perhaps scarcely a single gentleman in any profession who would not consider and resent an offer made for his services at one-seventh or one-sixteenth of recognized professional rates, as offensive. Yet in this, as in many other cases, we find learned and educated men—presuming the "commission" to be such—bartering for the professional services of others at proposed rates of the most insignificant character, averaging per day, for the time expended in getting up fairly delineated drawings, no better pay than the averages paid to hod carriers and coal heavers: illustrating the extent to which abuses are *generally* carried in such cases; for while we make direct reference to a special case, we refer to it only as representing the *common practices* in connection with "competitive designs."

Asking or inviting men by advertisement, circulars, or otherwise, to renderskillful professional service for next to no compensation at all, is extremely demoralizing in character, as it tends to stimulate and vitalize scheming designs for self-protection on the part of those who accept the contingences in such cases. Certainly men of character and standing will not and do not expend time and labor in making plans in which there is no sufficient coin inducements. Men do not devote their time, talents, and energies to any profession or pursuit for the mere pleasure of doing so. Pay and profit is the incentive in every instance of human toil, whether professional or mechanical; and those who seek to obtain the services of others at less than fair rates, under any pretext, do an unjust thing, and provoke dishonest or compensating acts; for if men, per force of certain conditions interposed, submit to unfair exactions, that submission ceases when the opportunity for equalizing matters present themselves. But aside from the compensation feature, the meaner injustice exists in the dishonorable and seldom exceptional practice of trifling with the rights of those simple enough to engage in "competitions" with no other dependence than the merits of their designs. A dependence by no means certain in character, as the fact is well-known among architects, that personal favoritism, influence, and interests more generally override all considerations of both justice and merit, and but few "committees" or "commissions" consider it any offense against moral or personal rights to award premiums to the most meritorious designs, *for the purpose of securing the right to use them,* and then appointing a favored party, who may have failed altogether, or at best only submitted the plans to which the second or third premium has been awarded, and that, too, in numerous cases for the sole purpose of rendering the selection of such parties plausable and defensible.

We do not make these statements at random, but with substantiating facts in our possession. And, as we have before stated in the course of these articles, if all the unjust, unfair, and dishonorable truths in connection with competition designs could be presented in our volume they would exhibit an array of double-dealing, deceptions, and impure manipulations by no means creditable to the "honorable" class of gentlemen who generally have managed them. In various ways, and especially in competitive "design" operations, architects seem to be considered by many as mere *toy men;* men to be played with; men who will do anything and submit to any proposition, however unfair or unjust to secure business, without reserving to themselves any rights which others are bound to respect. Consequently, all rules of business and scales of compensation established by architects or architectural associations are disregarded, and those who dictate competitions fix their own standard of values upon the services sought to be obtained; and, unfortunately for the honor of the profession, there are always some who are ready to accept any proposition in which there is a shadow of business chances, however remote and unreliable they may be.

As a matter of course, the facts stated in this connection, adverse to the system of competitions as a whole, will not be readily conceded or accepted by parties outside of the profession, nor by some who have profited by their successes in competitive plan-making. But the rejection of that which is true never impairs the integrity of the fact itself, whether confessed or denied.

The Umbrella Man.

We are acquainted with a gentleman who carries an umbrella until it is worn out—by no means a common occurrence. His explanation is, that, as he never ventures out, rain or shine, without it, sheer force of habit prevents him from leaving it where he stops, the common fate of all umbrellas. If an apprentice to any trade adopts in the beginning the plan of never doing a poor job, he will form a habit that will stick to him like the gentleman's umbrella, and that in later years will bring him in large returns. Few realize the enormous power of habit. The young man engaged in mechanical pursuits who is going to do the *next* job right, never amounts to much. The young man who can't be diverted from doing this job right cannot be kept down.—*American Machinist.*

Editors California Architect:—In common with many others, I am pleased with your journal. It is doing a good work among house-building mechanics, and it is a matter of common remark, that its influence for good is being felt. I wonder that you, or some one else, did not begin such a journal sooner. It seems singular that thirty odd years should have gone by without a paper like the Review being published in California. But better late than never; and I hope you will succeed well. There are a great many points to be thought of and written about, and the way you handle matters is good. Go on and prosper; and I hope that every mechanic in the State will subscribe for your paper.

A Working Man.

Commercial Colors.

The colors of the present day are becoming numerous, and the market is flooded with an unbounded variety. Color makers and grinders are accumulating in all parts of the United States, so much so, that the public is at a loss to determine the nature or origin of the colors they produce. Many years ago painters mixed and ground their own colors in oil or distemper. Sign painters, as well as carriage painters, used the muller and stone slab, for pulverizing and grinding fine colors. House painters used paint mills to grind lead, as well as colors. The pure dry colors were then easily obtained, and were prepared by the painter when wanted. The apprentice of that day was well employed in mixing and running colors through the mill. Commercial dealers, to accommodate the trade, commenced compounding and grinding colors by power mills, thus doing away with the labor of the paint-shop, in the preparations of colors. The manipulator, or mixer of the shop, is now found in the paint and color works, and one man now, by the aid of the machine mills, does the work of a thousand. The mill colors are generally well ground, and put up in assorted packages, in all quantities to suit the market. The result of this mode does not cheapen the cost of painting, but rather adds to the cost of material, and the art of color mixing is lost to the shop. Not only is the compounding of crude colors lost, but the manual labor and skill thus taken from the painter leaves but little or no shop work to do, and limits his skill to one of brush work, which many handy men can do, though not so well. At this rate of innovation, the painters' occupation will soon be numbered among the lost arts. The general public is the most benefited, especially amateurs, by the growing enterprises of the factory system. This mode of color and paint manufacture for commercial purposes is becoming very unreliable to the trade. As it is, painters select the best colors known to them for their own use, and leave the bulk of *tin ware* and *label* paints to the amateur public. Eastern and western factors resort to chemical and other vile mixtures to cheapen the production, and thus enrich their corporators, from extensive sales. These colors are put on the market as pure, unadulterated stock; they are quack compounds, with flaming pastels to catch the package, the more easily to tempt the uninitiated buyer. It may be urged, that the exigency of the times requires the presence of color-men, to do all the work of mixing crude colors, or, more properly, to manufacture the pigments, by levigating the native product, to dry and grind them in such vehicles as is needed for their use. "To be sure, that is so," says the amateur. But when we see the work of most color-men, whose goods are patent mixtures; are fugitive or fleeting in their nature, then it is, we opine, a change is needed in the *labels* of all oil colors, with the maker's name in full, to guarantee each package. Consumers would do well to procure the unadulterated dry colors, and pass them through the hand mill until the required fineness is obtained; and they will find the colors thus treated are pure, and the cost much less than the commercial article. The foregoing applies with equal force to the tube colors used in the artist's studios; for the color-men of Europe have, for a long period, engrossed the work of the painters' atelier. Then there are a greater variety of color used by portrait and landscape painters; such as the fine permanent Blanc d'Argent, or Silver White, Aureolin, the Orange Ladmums, Naples Yellow, Sienna, Chinese Vermilion, the Madders of Carmine, Rose, Pink, and the blues of Ultamarine, Lapis Lazuli, or Blue Stone, Lobult, Cerulean. Then there is the Neridian, and the transparent Oxide of Cromium, sometimes called the Emerald Oxide of Cormium, Terre Verte. Of Purple Madder, Gold Purple, Rubens Madder, Purple Lassins. The Vandyke Brown, Rubens Brown, and the Ultramarine Ash, or Gray. Ivory and Blue Black, with the superb Lakes of Carmine, Scarlet, Purple, Indian, Florentine, Hamburg, and Kermes. These are the principal colors used, though not all permanent; but they are sufficiently durable, if properly employed, as to their chemical relations. Trade colors are made to sell, and the artist must select his colors from the various makers, until he is assured of their purity and permanence. The time may come when manufacturers will turn their attention to the production of pure natural or metallic colors, in a form indisputable, and on which a safe reliance can be placed. All painters' materials, as well as pigments, need to be prepared with greater nicety as to their fitness, rather than that of splendid showcase goods. If we are to have great painters, there must be in embryo the rudimental materials to perpetuate that greatness down the future pathway of renown.

J. E. W. C.

To Make Wood Fire-Proof.

P. Folbarry, of New York, has devised a method of making wood incombustible, without in any way altering its outward appearance. Wood prepared in accordance with his process may possibly be charred just at the surface, but the heat to which it is exposed, though ever so intense, can never penetrate right into the wood and touch its fibres. Timber petrified in this way is particularly suitable for staircases that are to resist a conflagration. The composition devised by the inventor is as follows: Fifty-five pounds of sulphate of zinc, twenty-two pounds of potash, forty-four pounds of alum, twenty-two pounds of sesquioxide of manganese, twenty-two pounds of sulphuric acid at sixty degrees, and forty-five pounds of water. The whole of the solid substances are put in an iron vessel, containing the water at a temperature of 113 degrees Fahrenheit. When all this solid matter is dissolved, the sulphuric acid is poured in slowly, until the whole is saturated with it. The solution is now ready, and in order to prepare timber with it, the pieces must be put on an iron grate in a suitable recipient, in accordance with the size of the pieces and the object for which they are intended; care being taken to leave half an inch between any two pieces. The composition is pumped into the recipient, and after the whole of the spaces have been filled up, it is left there in a boiling state for three hours. The wood is then taken out and placed on a grate-like wooden stand in the open air, to make it dry and firm. When thus prepared, the impregnated wood may be used for ship-building, and building in general, for railway carriages, scaffoldings, posts, wooden pavements, and generally for all purposes where it is desirable that the material should be able to resist fire.—*The Philadelphia Commercial World.*

Two-cent Stamps.

We would particularly call the attention of those sending us stamps, either for copies of the CALIFORNIA ARCHITECT AND BUILDING REVIEW, or for the payment of books, to send us the amount in TWO-CENT stamps. We have now a plethora of three and six cent stamps on hand, and only desire stamps of the smaller denomination, either ONE or TWO cent.

MANY persons suppose that Chamois skins are derived from the animal named the Chamois. In fact, the skins so called are the flesh side of sheep skins, soaked in lime water, and also in a solution of sulphuric acid. Fish oil is poured over them, and they are then carefully washed in a solution of potash.

The *Commercial Advertiser* of Honolulu contains a lengthy detailed description of the King's new palace, from which we glean the following:

"The main body of the new palace forms a substantial rectangular mansion, with a tower at each of the four corners, which are not made parts of the main building, but flank the verandas, which would otherwise run all around the building. Also a middle tower in the front and rear elevation, of greater dimension. These tower features were designed to produce a more imposing effect to the building; but in point of fact, such is not the case, and as seen at a distance, the palace does not look so large as it really is. Many criticisms have been indulged in, both as to design and internal arrangements. Some of these have been captious; some mutually destructive; others no doubt justified by the rule of common sense, and the inspirations of the æsthetic sense.

"The exterior design cannot be described in a few words, or referred to any recognized order of architecture. 'American Florentine' is the nearest approach to a name. The *facade* of front is 140x54 feet high—two stories. Each tower is capped by a square *campanile*, having concave outlines, so common in the Italian architecture of the Middle Ages; the central towers being three stories, with a hight of eighty feet. The main floor is nine feet above ground, approached by wide iron steps.

"The internal arrangements consist of one large hall 28x70 feet, and a staircase six feet wide. At the right-hand side of the hall is the throne-room, 40x70, less eight feet separated by a screen behind the throne for an anteroom. At the left of the hall is the dining-room and apartments, 32x45 feet. Also a smaller room, 25x32 feet, which may be used as drawing-room. The dining-room is strikingly handsome, but its appearance is marred by a series of ventilators below the cornice. The staircase will be handsome, the massive balustrade and other details making up for their narrowness. The hall above is 28x50 feet. By changes made in the original plan, an available floor-space has been obtained for dancing, a needed arrangement, as no ball-room was provided in the original plan, except by encroachment upon the sacred precincts of the throne-room. The king's room is 25x30, with dressing and bath rooms attached. Adjoining the library, designed also to be used as a Privy Council chamber, an apartment 22x30 feet. The music-room in front is 22x30 feet. The Queen's apartment is similar to the King's rooms. Two guest chambers, 23x30, are also provided. The tower rooms are 12x12 feet, communicating with interior rooms. The baggage rooms, telephone appointments, basement, billiard room, kitchen, store-rooms, bath-rooms, office, etc., and the general details of finishes and elaboraties, are given, but at too great a length for our columns in full."

In the same journal we find a full description of the new mansion for Mr. Claus Spreckels.

"Many new residences have been erected during the past twelve months in Honolulu for our prominent citizens, but they are all thrown into the shade by that which has been built for Mr. Claus Spreckels on Punahou street, Mr. Charles Geddes of San Francisco, architect. This handsome structure, with its lofty tower, presents an imposing appearance, and is the most conspicuous object in the south-eastern part of the town. It is situated on a plot of land formerly belonging to the trustees of the Oahu College, having a large frontage to Punahou street, with adequate depth. The house is placed about three hundred feet back from the street line, and near the middle of the grounds. This site was purchased by Mr. Spreckels some time ago, at the auction sale of Punahou lots, for the sum of $5,000. The ground still remains very much in the state in which it was at the time of the sale, except that a number of the algeroba trees have been removed, to make way for the house. It is almost exactly level, and from its dimensions and the position in which the house has been placed offers fine scope for the genius of whoever may be selected to lay it out and plant it.

"The house itself is of two stories, with an attic—if the real handsome apartments above the second floor can be so designated. Above the third floor, over the main entrance, rises a handsome tower, which adds much to the appearance of the structure, and commands a really fine view, especially to the westward. The main building, which is wholly of wood, on a brick foundation, is about 60 feet by 52 feet, and is completely surrounded by a veranda 13 feet wide, and at the second story by a balcony 11 feet wide. The veranda and balcony each give a promenade of 300 feet. The ornamentation of the exterior is elaborate but chaste, the only florid feature being the columns of the veranda and balcony, of which there are 30 in each. These are of that order of Grecian architecture known as the Composite; the capitals being a combination of those belonging to the Ionic and Corinthian orders. The work in the ornamentation of the tower is particularly elaborate, and has a very pleasing effect. The ground-floor of the house is raised about seven feet from the level of the ground, and is approached by a handsome flight of steps. There are also similar flights on either side and at the rear of the building. The hight of the ground floor rooms is 16 feet; of those on the second story, 15 feet; and of the attic, 10 feet, 6 inches, except the room under the tower, where it is 15 feet. There are four rooms on the ground floor; two front parlors; one 20 feet x 35 feet; and the other 20 feet x 30 feet; a dining-room 19 feet x 30 feet, with, in addition, a great bay, the whole width of the room; and a music room, 19 feet x 26 feet, with a similar bay. The hall is 14 feet wide by 34 feet, 6 inches. The kitchen, pantries, and servants' apartments are in a separate two story building, 26 feet x 31 feet, standing at the back of the house, and divided from it by the veranda. At the front entrance, and distinct from the hall, is a vestibule 12 feet x 15 feet. On the upper floor rooms are laid out exactly like those below, with the exception that the dressing and bath rooms are cut off from them, and that there is, in addition, a boudoir at the front of the building, over the main hall. The ceiling of the hall is pierced by a long opening with oval ends, through which the handsome skylight of stained glass is seen. This adds very greatly to the appearance of the hall, besides securing unlimited ventilation. A stained glass window of large dimensions is also to be put in as a light to the staircase. In the original design of the house it is not intended to make any use of the attic story, but Mr. Spreckels recently decided to have it divided, and the rooms plastered. The plaster work of the two main floors is already completed, including some very handsome work in the moldings and centers. A great deal of the internal work is finished, but all the more ornamental part of it has yet to be begun. The whole of the work has been done under the superintendence of Mr. James M. Kelly, who was sent from San Francisco by Mr. Spreckels to take charge of it. The plastering being supervised by Mr. J. D. Ramsey, a tradesman of experience from San Francisco. Mr. Kelly estimates that everything will be completed by the end of the year. This palatial mansion is estimated to cost about $60,000—a low cost for a structure of such proportions and superiority of finish."

In 1390, some friars in Switzerland wished to build a windmill, to save the labor of grinding corn by hand; but a neighboring landlord, who had bought the country around, forbade them, because, he said, he owned the winds. The bishop was appealed to, who said that the winds belonged to the church, and could not be used.

The Ætna Insurance Company.

From the *Coast Review* we learn that the Ætna Insurance Co. of Hartford, whose advertisement appears in this number, has been enjoying for some time past a period of great prosperity. It has recenty increased its cash capital to $4,000,000, and its assets to nearly $9,000,000. It has the largest CAPITAL, the largest SURPLUS, and the largest ASSETS of any company in America. Starting in the year 1819, it has passed successfully through all the great conflagrations, paying out nearly $55,000,000 for losses, and is in a better condition to-day than ever before. Its conservatism and careful management is the secret of its success. Mr. George C. Boardman, its general agent, before his departure for Europe, placed Mr. N. W. Winton, formerly of Santa Barbara, in charge of the city and county agency, and Mr. T. E. Pope, the present special agent and adjuster, in charge of the general agency. These gentlemen have had considerable experience as underwriters, and under their careful and conservative management, the Ætna enters upon a new era of prosperity.

"A three-story building in process of erection for the Alleghany R. R. Co., Richmond, Va., owing to the bad design of the roof, 'was crushed by the weight of the slate.' Two men were killed, and four injured." * * * It is claimed that the road managers are not responsible, inasmuch as the building had not passed into their hands. But it is questionable whether a company permitting the erection of an insecure and faulty structure upon their premises, under plans furnished and approved by them—the approval being a virtual assumption of responsibilities, can evade the involvments of the case. If the fall had resulted from defective execution, or a lack of proper care on the part of the builder, then the obligations would be changed. But if the plans furnished by the company were defective and insufficient, and the fall occurred by reason thereof, in our opinion, the company must assume all responsibilities.

Wild cherry is a wood for which a large demand has sprung up in the United States. In supplying the place of walnut, cherry is a very valuable wood, and care should be taken of the growing trees. It is used very extensively in making ebonized furniture. It has a very close grain, takes the best stain, and is capable of high polish. Besides its use in furniture, cherry is used largely in the internal fittings of cars and public buildings. The tree is common in Michigan and other timbered States, and is imported from the United States. The timber is probably as enduring as walnut.—*Lumberman's Gazette.*

Meeting of Architects Postponed.

Owing to the absence from the city of the President and several members of the Pacific Coast Association of Architects, the October meeting was not called. The next meeting will be held the first Friday in November, at which time it is hoped that all will be present. Several new members will be proposed, and business of importance transacted.

The manufacturer who does not advertise rarely has to run his machinery night and day, and is not compelled to the disagreeable task of declining orders because he has too much to do. And yet some men will advertise.

☞ Subscription price of this journal for 1881 will be $2.00 in advance.

A Useful Plumb Rule.

Get a good piece of board, a little larger than may be desired, and strike a circle on its face at each end, taking care that they are both struck from the same center. Plane straight on the edge until the sides of the circle are touched on each side. When this is done the piece of board will be of parallel breadth. Then a line drawn through the center, with a slit for the cord and an opening for the play of the bob, will complete the plumb.

Periodically for the last ten or fifteen years, we have heard that the steam engine was about to be superseded by some motor or other. Just at present it is the electric motor that is to do it; but since it seems reasonably well demonstrated that it requires two steam engines to generate electricity for one electric motor, it seems probable that steam engine manufacturers won't shut up shop just now.—*American Machinist.*

Among the new discoveries made within the past few months is a large body of asbestos. This was discovered about six miles from Deadwood City. The croppings can be traced for nearly 300 feet. Tests have been made which prove that this body of abestos is equal to any yet discovered in America.

Schemes for utilizing sawdust have become common. It is now proposed to start a pulp factory at Ottawa, Ont., with a capital of $20,000, for making pulp out of sawdust, the stock to be used for making printing and wrapping paper.

THE demand for bound volumes of this journal for 1880 has been such that we have had 500 additional copies bound, which we will send to any address at the reduced price of $2.00 per volume.

Market Reports.

LUMBER.—The death of the President caused a lull in the demand for lumber. But since the obsequies, the demand has been resumed, and at present time is fairly active. No change in prices since our last.

Receipts since January 1st:

Lumber	150,596,333
Shingles	50,975,410
Laths	12,615,600

A correct price list of lumber will be found below:

Pine.

Common Rough, up to 40 feet, per M feet			$21 00
"	41 to 50	" "	22 00
"	51 to 60	" "	23 00
"	61 to 70	" "	25 00
"	71 to 80	" "	27 00
Refuse Rough		" "	17 00
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over,		"	28 00
"	4 " and under, and 1¼x4 and 1¼x6	"	
Flooring and Stepping			30 00
Rough Clear for Flooring, $1.00 less than above rates.			
Second quality Flooring add stepping		per M feet	22 50
Ship Plank, Rough		"	26 00
"	Planed 1 side	"	30 00
"	" 2 sides	"	3 00
Deck Plank, Rough		"	31 00
"	Dressed	"	35 00
Laths		per M	3 50
Wool Slats		"	10 00
Shakes		"	9 00
Redwood Posts		per piece	11

Redwood.

Rough Merchantable		per M feet	21 00
"	Refuse	"	17 00
Surface No. 1		"	32 50
"	1 x 6	"	30 00
"	No. 2	"	25 00
Rustic, No. 1, 1 x 8		"	30 00
"	No. 1, 1 x 10	"	32 50
"	No. 2	"	27 50
"	Under 10 feet	"	27 50
T. & G., 1¼ x 4 and 1¼ x 6		"	32 50
"	6 in. 12 ft. and over	"	30 00
"	" 7 to 11 feet	"	28 00
"	" under 7 feet	"	25 00
"	" No. 2	"	25 00
T. & G., Beaded, 12 feet and over		"	32 50
"	" 7 to 11 feet	"	28 00
"	" under 7 feet	"	25 00

Half-inch Surface	per M feet	$27 50
Pickets, Fancy	"	25 00
" Rough, Pointed	"	18 00
" " Square	"	15 00
Siding, ½ inch	"	22 50
Shingles	per M	2 25
Battens, ½ inch, lineal feet	"	¾c

NAILS.—Since January 1st we have imported 155,620 kegs. The demand is steady and active, with an upward tendency.

10 to 60 pennies, are quoted at		$4 00
8 "	"	4 25
6 "	"	4 50
5 and 4 "	"	5 00
4 and 5 pennies, brad heads, at		5 25
6 "	"	5 50
8 "	"	5 75
10 and upward	"	5 00
3 penny fines	"	7 50

PAINTS.—There is a fair demand for the fall trade. The PIONEER is the only brand quoted, as its excellent qualities, and the fact that it is strictly a home production, has about driven all other brands out of market.

We quote Pioneer White Lead 8½ cts. per lb.

Building Intelligence.

In almost every town and hamlet throughout our great State, is heard the merry sounds of the saw and hammer. Carpenters are not to be had, even at advanced wages. Orders are received every day in this city for good workmen, but there are not enough here to supply our own demand. We advise those contemplating building that now is the time to commence building operations. *Wages will be higher next spring than they are at the present time.* There are a great many contemplated improvements that will keep a large body of men at work all winter.

The Mechanics' Pavilion, which has for many years occupied the site on Eight street between Mission and Market, is to be torn down, and rebuilt on the block bounded by Larkin, Hayes, Grove, and Polk. The architects of the proposed change kindly showed us the elevation and ground plans of the new building, and we were surprised to see into what a fine building an old barn-like building could be changed.

Some of the old rookeries that have so long disgraced the west side of First street between Mission and Market are being torn down to make way for improvements.

The old buildings corner of Market and Beale have been removed, and a splendid brick edifice will be erected.

The property on the N. E. corner Pine and Sansome has been sold, and a splendid new building will be erected, to be occupied by a bank.

The C. P. R. R. intend building warehouses, car-houses, shops, etc., at Oakland Point, under the direction of their architect, Mr. Arthur Brown. Estimated expenditure $100,000.

Other changes are in process of development. Our readers will find a full list of buildings below.

SAN FRANCISCO.

Six-story and basement pressed brick and granite building, on corner of Webster and Sacramento. Architects, Wright & Sanders; contractor, J. S. Burpbee; cost, $100,000.

Stores and lodging-house N. W. corner of Jessie and Seventh. Owner, J. Sheehy; architect, T. J. Welsh; contractors, J. G. Jeffries and James McCann; cost, $23,000.

Two-story frame residence on corner of Gough and Vallejo. Owner, F. Barnard; architect, T. J. Welsh; days' work; cost, about $12,000.

Frame building on Haight, between Webster and Fillmore. Contractor, R. Doyle; architect, T. J. Welsh; cost, $3,300.

Two-story frame dwelling on Sacramento, between Laguna and Buchanan. Owner, Mrs. Roundsy; architect, —— Pelton; contractor, J. Furness; cost, $8,000.

Two-story and basement 4-tenement house, on Octavia, between Geary and Post. Owner, W. Lnideman; architects, Kenitzer & Raun; contractors, Norton & Walker; cost, $8,000.

Two-story and basement frame dwelling, on corner of Dolores and Day. Owner, O. Krenz; contractor, R. Bergfeld; cost, $3,000.

Corner of Post and Laguna, Mr. Goldie is having his house raised, and an additional story added. Contractor, M. O'Rourke; cost, about $800.

Two-story and basement frame dwelling, on corner of Gough and Broadway. Owner, Mr. Brooks; architect, —— Pelton; contractor, J. Furness; cost, $8,000.

One-story frame building, on Twenty-fourth, between Mission and Valencia. Owner, J. Horn; contractor, G. R. Bolles; cost, $1,800.

Frame building for stores, on Seventh, near Mission. Owner, A. D. Starr; contractor, J. P. Shephard; cost, $3,000.

Two-story frame building for stores and dwelling above, corner of Bush and Laguna. Owner, Mrs. Drager; architect, —— Bestor; contractor, R. Parker; cost, $9,000.

Remodeling and additions to building on Bush, between Octavia and Laguna. Owner, F. Martin; contractor, F. Roettger; cost, $2,000.

Building for coal depot on Ellis, between Powell and Mason. Owner, —— Knight; contractor, W. M. Fletcher; cost, $750.

Fillmore, between Clay and Washington. Stable, with rooms overhead. O. Peterson. Architect, J. Marquis; contractors, Little & Cummings; cost, $5,000.

One-story cottage on Herrman, between Webster and Fillmore. Owner, A. J. Wynn; architect, —— Bestor; contractor, —— McKay; cost, $1,500.

Freight shed and office for South Pacific Coast Railroad Company. Contractor, T. H. Day; cost, $2,640.

Two-story frame store and dwelling, on Hayes, near Gough. Owner, B. Daniels; architect, W. H. Bayless; contractor, J. Dutton; cost, $2,300.

Two-story frame, east side Valencia, between Sixteenth and Seventeenth. Owner, August Schade; architect, H. Geilfuss; contractor, J. Blake; cost, $2,700.

Alterations and additions corner Twenty-first and Shotwell. Owner, L. Feldman; architect, H. Geilfuss; contractor, P. Stecher; cost, $3,000.

Remodeling St. Luke's Hospital, to be used for an Old Ladies' Home, on Valencia St. and Twenty-seventh. Owners, Episcopal Society. Architect, Harold D. Mitchell; contractor, S. S. Emury; cost, $2,500.

Two-story dwelling on Twentieth, west of Capp. Owner, E. Porter; architect, G. A. Bordwell; contractor, J. Geary; cost, $2,500.

Raising and additional story to house on corner of Tenth and Mission.

Two houses on Pacific, between Stockton and Powell. Owner, Mrs. Doran; architects, Hoffmann & Curtis; contractor, A. J. Moody.

Four tenements on Dolores, between Sixteenth and Seventeenth. Owner, J. C. Stedman; architects, Hoffmann & Curtis; contractor, Geo. Tressler.

Three-story brick building on Washington, between Dupont and Stockton. Owner, Hop Kee Co.; architects, Hoffmann & Curtis; contractor, John McFadden.

One and one-half story frame dwelling on California, between Pierce and Scott. Owner, C. Hirschfeld; architects, Sam. & Jos. C. Newsom; contractor, J. Doherty; cost, $5,000.

Three-story brick house on Fremont, between Market and Mission. Owner, G. W. Gibbs; architect, —— Cleaveland; days' work; cost, about $40,000.

Additions to building on Mason, between Union and Filbert. Owner, Mrs. Ackerman; contractor, R. P. Hurlburt; cost, $2,500.

One-story brick building on corner of Fifth and Townsend. Owner, —— Whitney; contractor, Mahoney Bros.; cost, about $15,000.

Sixteenth, near Valencia. Alterations to building. Owner, Mrs. May; contractor, R. P. Hurlburt; cost, $1,200.

Conservatory at 30 Laurel Place. Owner, Capt. Nelson; contractor, R. P. Hurlburt.

ALAMEDA.

Congregational Church on Central Avenue between Grand and Union streets. Cost about $3,000.

One-story frame cottage, five rooms and bath, on Pearl street between Encinal and Central Avenues. Owner, E. K. Howe; builders, Gilbert & Brown; cost, $2,060.

Two-story and basement frame dwelling, twelve rooms with stable, on Santa Clara Avenue between Willow and Chestnut streets. Owner, Wm. Johns; builders, Gilbert & Brown; cost, $7,000.

One-story frame cottage, ten rooms and bath, on Paru street between Clinton and San Jose Avenues. Owner, E. Wheaton; builders, Gilbert & Brown; cost, $3,500.

Two-story frame dwelling, ten rooms and bath, on N. W. corner Grand and Clinton Avenues. Owner, H. Daniel; builders, Gilbert & Brown; cost, $4,750.

One-story frame dwelling with Mansard roof, eleven rooms and bath, with stable, on Grand street betwee Clinton and San Jose Avenues. Owner, T. W. Floyd; builders, Gilbert & Brown; cost, $5,000.

SAN JOSE.

One-story brick building. Owner, Delmas; architect, Theo. Lenzen; cost about $2,000.

Two-story frame dwelling near Milpitas. Owner, R. S. Barber; architect, Theo. Lenzen; contractor, Silbey; cost, $3,500.

Two-story frame dwelling, with brick basement, on the Alameda. Owner, N. Cadwaller; architect, Theo. Lenzen; day's work; cost, $10,000.

Two-story frame dwelling with brick basement, eight miles from town. Owner, H. W. Edwards; architect, Theo. Lenzen; contractor, Jacob Lenzen; cost, $7,500.

One-story frame dwelling on Santa Clara between First and Market streets. Owner, C. Wright; architect, J. Gash; day's work; cost, $1,400.

Two-story residence on Riverside Farm. Owner, W. W. Montague; architect, Theo. Lenzen; contractor, Starr & Lendrom; cost, about $8,000.

One-story dwelling in South San Jose. Owner, —— Owsley; architect, Theo. Lenzen; contractor, Jacob Lenzen; cost, $1,200.

Two-story frame dwelling corner Park and Delmas Avenue. Owner, F. Schilling; architect, Theo. Lenzen; contractors, Miller & Matthewson; cost, $3,000.

Pavilion, bowling alleys, etc., at Newark Park. Owners, South Pacific Coast Railroad Company; architect, H. Geilfuss; contractor, Jacob Lenzen; cost, $7,400.

SACRAMENTO.

Three-story frame with brick basement on corner of Seventh and O streets. Owner, A. F. Hilborn; architect, N. D. Goodell; contractors, Carle & Crowley; cost, $9,500.

Three-story frame, with brick basement, on corner Tenth and L streets. Owner, Chas. McCurrie; architects, Babson & Seadler; contractors, Carle & Crowley; cost, $14,500.

Three one-story frame cottages with basement on M street between Fifth and Sixth. Owner, Henry Tesler; contractors, Carle & Crowley; cost, $4,500.

Two-store frame with brick basement on Tenth street between J and K. Owner, M Kesler; architect, N. D. Goodell; contractor, M. Madden; cost, $4,560.

LOS ANGELES.

Two-story and basement brick building for Normal School. Owners, State of California; architects, Curlett & Eisen; day's work; cost, $50,000.

OAKLAND.

North side Tenth street between Chesnut and Linden sts., two-story frame dwelling with brick basement. Owner, F. C. Hoag; architect and builder, W. H. Wharff; cost, $4,200.

STOCKTON.

Two-story dwelling for F. Thomas. Architects, Percy & Hamilton; contractor, H. Robinson; cost, $4,000.

Dwelling for A. Kilhas. Architects, Percy & Hamilton; contractor, A. F. Gilbert; cost, $2,000.

HEALDSBURG.

Mr. Chas. York is erecting a wagon shop in North Healdsburg. Contractor, —— Goodspeed.

Mr. Hebron is erecting a cottage. Contractors, Goodspeed & Combs.

SEATTLE, W. T.

Warehouse 24x60. Owner, Wusthoff; contractors, Thomas & Goodman.

One and one-half-story residence. Owner, Wm. Good; contractors, Thomas & Goodman.

One and one-half-story residence. Owner, B. Wetmore; contractors, Thomas & Goodman.

Large tenement house, Union and Eight streets. Owner, L. S. Rowe; contractor, E. W. Rea.

Two-story frame. Owner, B. F. Day.

Two-story dwelling. Owner, H. L. Yesler; contractor, L. M. Robbins.

Additions to dwelling of W. P. Humphrey.

Additions to dwelling of Dr. Root.

RIVERSIDE.

Two-story dwelling. Owner, T. W. Cover; contractors, Boggs & Ripley; cost, $6,800.

Two-story dwelling. Owner, Dr. J. D. B. Stillman; contractors, Boggs & Ripley; cost, $4,000.

One-story cottage. Owner, Dr. J. D. Gill; contractors, Boggs & Ripley; cost, $1,900.

One-story cottage. Owner, E. Rosenthal; contractors, Boggs & Ripley; cost, $1,600.

One-story cottage. Owner, Miss M. E. Call; contractors, Boggs & Ripley; cost, $1,100.

One-story cottage. Owner, C. Fessenden; contractors, Boggs & Ripley; cost, 1,475.

One-story cottage. Owner, D. Wilder; contractors, Boggs & Ripley; cost, $900.

Two-story dwelling. Owner, Mr. Treat; cost, $1,600.

Two-story dwelling. Owner, Mr. Pechner; cost, $1,200.

One-story cottage. Owner, Mr. Russell; cost, $800.

Two-story dwelling. Owner, A. P. Johnston; cost, $6,000.

One-story dwelling. Owner, Mr. Ascroft; cost, $3,400.

One-story dwelling. Owner, Mr. Combs; cost, $900.

Two-story building. Owner H. M. Been; cost, $3,300.

One-story building. Owner, H. M. Been; cost, $500.

Two-story dwelling. Owner, H. M. Been; $3,000.

Two-story dwelling. Owner, J. Sunis; cost, $2,400.

One-story cottage. Owner, M. Parker; cost, $900.

Two-story cottage. Owner, J. Meyers; cost, $1,200.

Two-story dwelling. Owner, M. Stefler; cost, $2,000.

Two-story dwelling. Owner, Mrs. Aberdien; cost, $2,300.

MISCELLANEOUS.

WHEATLAND.—Contract for the I. O. O. F. Hall was let to Swain & Hudson, of Marysville. Architect, A. A. Cook; cost, $11,000.

BENICIA.—Lyons & Hunter are constructing a shed to cover Gas Company's tank.

RED BLUFF.—One-story dwelling with brick basement on Washington street. Owner, G. H. Chase; contractor, Hans Hansen; cost, $1,400.

COLUSA.—Contract for school-house let to —— Warner. S. & J. C. Newsom, architects; cost, $9,000.

REDWOOD CITY.—Additions to the Court House. Architect, A. Laver; contractor, Jacob Lenzen; cost, $12,750.

SANTA CRUZ.—Hotel and country resort. Owner, B. C. Brown; architects, Hoffmann & Curtis.

ST. HELENA.—One-story building. Owner, J. R. Kettlewell & Son.

BIGGS.—House and barn. Owner, Mr. Henderson; contractors, John Myers and W. Webb.

SAN RAFAEL.—Seven miles from town, two-story frame dwelling. Owner, Geo. Pacheco; architects, Kenitzer & Raun; contractor, Geo. W. Bond; cost, $7,000.

REDDINGROAD.—Near town, two and one-half-story barn, 34x66, first-story will be stone, balance frame. Owner, G. Niebaum; architect, W. Mooser; contractor, J. W. McMillan; cost, $7,000.

Near town, two-story frame dwelling. Owner, H. Harries; architect, J. Marquis; contractor, J. W. McMillan; cost, $4,000.

Publication Notices.

Modern Architectural Designs and Details, published by William F. Comstock, successor to Bicknell & Comstock, in 10 parts, makes—bound—a very handsome and valuable book of designs for houses, and plates of details, useful alike to architects and builders. The "parts," or numbers, separately, can be had at this office, at publisher's price, of $1 each, or the ten "parts" neatly bound for $10. All other books on architecture, steel square, and all other subjects, can be had through this office at publisher's rates. Orders from all sections of this western coast, and places bordering upon the waters of the Pacific Ocean, filled with promptness.

We have received Vol. I. of "*Palliser Useful Details*," published by Palliser, Palliser & Co., Bridgport, Conn. It consists of over forty pages—20x26 inches—each page being filled exclusively with details in original design, showing about every conceivable thing in connection with house construction and finishing. The publication price of $3 per volume is certainly very low for a publication containing so large an amount of practical information and instruction. It cannot be otherwise than useful to all practical architects, and especially so to students of architecture, and builders who undertake the construction of buildings for which plans and details are not furnished by architects. Orders for same received at this office, and copies sent to any address as soon as a supply can be had from the East.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

The California Architect and Building Review.

VOLUME II.
NUMBER 11. } SAN FRANCISCO, NOVEMBER, 1881. { $2.00 per Annum, in Advance. Single Copies, 20 Cents.

The California Architect
—— AND ——
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion..... $1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion..... 1 25
On other inside pages, per square, each insertion..... 1 00
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A Word To Our Patrons.

We are exceedingly anxious to make this journal all that we intend it shall be. To this end, we renew our earnest request that each of our readers lend the helping hand. A little personal effort on the part of each will surely add one or more new, for each present, subscriber to our list. This result will be a gain and benefit to each and all of our readers; for the increase of subscriptions will enable us the sooner to complete contemplated improvements, and make this the *standard class journal of the Pacific Coast.* It has already gained an enviable reputation and standing among the journals of the eastern States and Europe, and its influence for good to the mechanical, manufacturing, and industrial interests of this State and coast is destined to be large. We have worked our way upward under great disadvantages, and in the face of conditions generally which would have caused timid men to falter and fail. But it was not until all the probabilities and possibilities were fully considered, that the resolve was made to venture upon the difficult task of establishing a new class journal, in the midst of a people who for thirty years had trained themselves to depend upon distant States and cities to supply the demand for a journal of this character. And now that the mountain has been scaled, and the mastery gained over obstacles which at the beginning seemed almost insurmountable, the call is made upon our many patrons to increase their zeal in making this the GREAT PUBLICATION SUCCESS OF THIS WESTERN COAST. The success which has come, and continued to increase with each months' publication, has had the effect of creating the still greater desire that thousands more may add their subscriptions, and so make manifest to the world, that while California leads in innumerable connection, it is alike possible and a fact, that she can also boast equality with the *very best journals published in the English language.*

Pacific Coast Association of Architects.

The regular monthly meeting of this association was held on the 4th inst., President Laver in the chair; the number present was larger than at any previous meeting since the organization of the society, and greater interest and earnestness manifest.

We sincerely hope that at an early day every qualified architect in this city, and on the Pacific Coast, will unite in efforts to establish and make this association one of the most flourishing and influential in San Francisco; that it is capable of being made a power for good, both to architects and the public at large, there can be no question. The sooner the narrow confines of selfish, ambitious, and personal interests in their contracted senses can be enlarged into a broader and more generous and liberal spirit, the better it will be for the honor and dignity of the profession. In architectural, as in all other relationships where personal considerations and interests control the actions of men, the tendencies lead away from the higher, better, and more enlarged, lying within the grasp of those who combine with honest intent to improve themselves by uniting with kindred minds in the pursuit of improvement. This we are authorized to say, that it is the earnest desire of the promoters of the organization that every worthy and reputable gentleman competent in the noble science of architecture should unite in the good work. The arguments favoring the establishment of such a society in San Francisco are equally forceable with those surrounding the profession in any portion of the United States; and we are satisfied, that if the actual and legitimate facts appealing to the architects of California were fully realized by each, none would withhold his presence and co-operation.

A committee of three, consisting of Messrs. Mitchell, Welsh, and Wolfe, were appointed to revise the present by-laws of the association, and formulate a scale of charges for architectural services.

The following-named gentlemen were elected members of the association: Theo. Lenzen of San Jose, O. Morgan of Los Angeles, O. Everett of San Francisco.

Ex-Senator Donovan being present, submitted the "Titus Sewer Gas Trap" for the consideration of the association; a committee of three was appointed to examine the same, and submit the result of their investigation at the next regular meeting.

Letters were read from A. J. Bloor of New York, referring to the formation of a "chapter" in San Francisco. The matter was discussed, and several present signified their willingness to unite in an effort to organize a branch chapter in this city. This matter will receive further attention at the next meeting, and some definite action may be expected for the purpose of effecting such an organization.

The fact being stated that the managers of the CALIFORNIA ARCHITECT AND BUILDING REVIEW intended to adopt a new heading, or frontispiece, for the January issue of that journal, it was generously resolved, by unanimous resolution, that the sums of $25 and $15 respectively, be appropriated as competitive awards for the two best designs for that purpose; the designs to be presented at the next regular meeting, and their respective merits adjudged and determined, and the awards made by the association.

We most heartily and sincerely appreciate this unexpected and generous act, not alone for its intrinsic value, but as evincing the good esteem and appreciation in which our humble efforts to establish a journal in the interest of the architectural profession on this coast is held by the members of the association.

Signature Hieroglyphics.

Many amusing stories are told, even of learned and great men—statesmen, divines, editors, and lawyers—who have been unable to decipher the meaning of sentences sometimes produced by their own pens, except by mental recollections of what they intended to communicate. And it is by no means uncommon to see names subscribed to missives which are more like the ogams and hieroglyphics of the ancients, than modern penmanship. If such persons could but recognize the onerous taxation involved upon printers in these facts, they would certainly be more careful. Many pious and good men who "would not for the world" cause a fellow-being to say naughty words, are fearfully at fault, and unwittingly "make printers swear like trogers." A compositor who is compelled to spend one-half of his time in striving to reduce the pen or pencil scratches before him to plain English would be more than human if he did not do a little profane *thinking*, even if he restrained his tongue from expressing the emotion of his tortured soul; and editors, too, if they were not the most patient of human kind, would echo the refrain from the compositor's rooms over some of the manuscripts received.

Tons of manuscript have been tossed into the waste basket because of the difficulty, if not the utter impossibility, to read them. Time is money with editors and compositors, as well as other people, and it is reasonable to expect that communications which require an hour to "make out" the true intent and meaning of sixty minutes writing, should meet the waste basket fate.

All this we write, because subscriptions to this journal have poured in upon us so rapidly of late, and among them there have been so many names subscribed which required the full corps of this office, from the managing editor down to the "printer's devil," to decipher the signature, and in many cases from professional and business men who ought to be able to

WRITE THEIR NAMES PLAINLY.

Two-cent Stamps.

We would particularly call the attention of those sending us stamps, either for copies of the CALIFORNIA ARCHITECT AND BUILDING REVIEW, or for the payment of books, to send us the amount in TWO-CENT stamps. We have now a plethora of three and six cent stamps on hand, and only desire stamps of the smaller denomination, either ONE or TWO cent.

IN San Francisco, with the houses nearly all of wood, and with a population of 233,000, the total assessed valuation of all property, real and personal, is $253,000,000. In Hamilton County, Ohio, which includes Cincinnati, and has a much larger population than San Francisco, it is $207,000,000, and in St. Louis, with a population of 340,000, it is only $165,000,000.—*Southern Manufacturer and Builder.*

Immigration.

We have before us a pamphlet, the contents of which was read before the Board of Trade of San Francisco, October 4th, 1881, by Mr. Sumner W. Bugbee, setting forth the necessity for the right kind of immigration to this coast. The strong and irrefutable facts of the case are reviewed at some length, but not exhausted, and showings made which should bear weight upon the subject discussed.

We of California boast the inheritance of "one of the most favored spots on earth," with resources endless, climate unsurpassed, wealth in minerals, cereals, vines, and orchards, beyond computation, and in manufacturing and natural advantages calculated to make the city of San Francisco and the State of California all that the most favored cities and States of the Union are or can be; yet with all these, we lack population, and the uninitiated might reasonably ask why this is so.

The first and strongest reason comes from across the broad waters of the Pacific Ocean, from a race of beings who have not a single sentiment in harmony with those of the American people, except the love of money, and with no regard to the means of its obtainment. Virtue, truth, innocence, and human liberty are baubles to them, when sacrifice of these brings gains and profits. They seek our soil, not to perpetuate the rule of government, and the social and business relationship which has made us a great nation, but to overrun the land with hordes of human slaves, to battle against and crowd down and out the American and European sons of toil, who have built up the greatness of our God-blessed country by the hard labors of their hands and sinewy arms, and the arduous and untiring application of their mental and physical energies.

The few advantages that Chinese and Chinese slave labor have been to California are insignificant when compared with the stupendous evils which have flowed from and exist by their presence. Many of those who have employed this class of labor in the past have profited thereby financially; but Chinamen have been the greater gainers, because they have learned many of our manufacturing and mechanical arts, and used them upon our own soil, and not only closed the doors of opportunities against the white laboring classes, but have so fortified themselves by the advantages made possible to them, that capital itself feels the withering blow of Chinese competition. There is scarcely an avenue of trade and manufacture which has not been encroached upon by Chinese Josh worshipers; and if our "Golden Gate" remains unbarred against their coming, without any restrictions, the inducements for those of our own race to seek a home upon the shores of the Pacific will diminish, and the time not be far distant when hordes of Chinese, if unhindered, will sweep over our favored State, and increase the difficulties in the way of immigration by people of American and European origin. This is the first and greatest evil and drawback upon the increase of population within the Pacific States, and is the first for which a remedy should be found and applied; because so long as it is permitted to continue unmolested, it gains strength, and becomes the more formidable and difficult to manage. It is a disease on the body politic, which demands the surgery of restrictive laws without delay. Land monopolies upon the Pacific Coast will have an ending. Railroad managers understand their own interests too well to hold and keep their vast domains intact; and other large landowners will in time divide up their tracts, and make room for others to sow and reap; or, should the present holders maintain their grasp too long, the old relentless messenger, who sways the powers of death, respecting neither conditions nor possessions, will dissolve the bands of life, so that heirs and litigants shall have the opportunity to divide the spoils left them by avaricious pre-emptors and first settlers.

Naturally, all other obstacles to greater liberality and more equal division and ownership of the soil will come to pass; but the settling among us of a race steeped in ignorance, vice, idolatry, and semi-barbarianism will be an incurable evil which no power can remove, if permitted to obtain permanent root upon American territory; and it behooves not only the working classes, but the mercantile, commercial, and business men of our country generally to look to this matter and *save themselves*. For not only will these people ruin the laboring classes of our own race, but when and as fast as they obtain knowledge of our methods, and mechanical and manufacturing arts and sciences, they will plant their foot upon the throat of every industry, and subjugate every interest to their own terms. They come to us with smiles and kind words, but only to perfect themselves in a thorough understanding of what we as a people have thus far in part taught them, that they may be able in the future to meet and conquer us on every field of business battle.

The capital which the merchants and masters from the Celestial empire will be and are able to control, and the million of serfs and slaves which it is in their power to import and employ, will defy all attempts on the part of the American people at profitable competition. And as an inevitable sequence, the Chinese will become masters of the situations, and command an influence and business power before which all present conditions in manufacture, trade, and commerce must yield.

This is no fancy foreboding of improbable results, but the solid facts presented and clearly deducible from what we of California have to our sorrow learned during the past thrty years. Tens of thousands of our own race have been driven away from this State and coast, and every branch and sphere of business has been injured by the people whose further coming, to the detriment of a better class of immigration, we emphatically denounce as a great wrong against the people of this western section, as well as the entire white population of the United States.

How Forests Produce Moisture.

Dr. Franklin B. Hough, United States Commissioner of Forestry, gives the following explanation of the effects of forest on moisture: It is a matter of common remark, that our streams diminish as the woodlands are cleared away, so as to materially injure the manufacturing interests depending upon hydraulic power, and to require new sources of supply for our State canals, and for the use of cities and large towns. Many streams once navigable are now entirely worthless for this use. The mode in which this influence operates will be readily understood when we consider the effects of forest upon the humidity and temperature of air.

A deciduous tree, during the season when in foliage, is constantly drawing from the earth, and giving off from its leaves a considerable amount of moisture, and in some cases the amount is very great. This change of state from a fluid to gaseous condition is a cooling process, and the air near the surface, being secured from the sun and from the winds, becomes, by this means, so humid that a rank, succulent vegetation often springs up and thrives, which in an open field would wither and perish in an hour. The air being thus charged with moisture and cooled, does not take up by evaporation the rains which fall, and the soil, being more open, readily allows the water from melting snows and from showers to sink into the earth, from whence a portion appears in springs and in swamps, which give rise to rills and streams.

The air at all times holds more or less watery vapor in suspension, and its capacity for doing so is increased as the temperature is raised, not by a steadily gaining rate, but more rapidly as the heat is increased. There can be no evaporation when air is saturated with moisture, and no deposit of water in any form until the temperature is reduced to the point of saturation. It is not yet determined as to how far the cooling and moistening influence of a grove may extend. It must depend upon many circumstances, and especially upon the slope of the surface, and the direction of the winds. The effect is often apparent to the eye from the freshness of the herbage in adjacent fields for many rods in width.

The effect of the woodlands in retaining snows where they fall, and in delaying their melting in the spring, has been everywhere observed in snowy countries. In such localities, the snow cannot be drifted by the winds, and when it melts it disappears slowly, sinking into the soil rather than flowing off upon the surface. The effect of this delay, in checking a too early appearance of fruit blossoms, cannot be mistaken. The result is in fact similar to that of considerable areas of water, such as our northern lakes, along the borders of which, especially on the lee-side, fruits are found to flourish with the greatest success. In a country interspersed with clumps and belts of woodlands, the snows drift less, and, melting more evenly over the surface, cannot fail to be beneficial to the interests of agriculture, and more especially to meadows and pasture.—*Leffel Mechanical News.*

Southern Timber.

The *New Orleans Democrat*, in the course of an interesting article on Southern timber and its superior qualitiy for manufacturing purposes, says: They have been cutting timber in the counties and parishes along Mississippi Sound for a century or so, yet the latest forestry report shows that in these counties from seventy-five to ninety-eight per cent. of the area is wooded land. The greater portion of this State is forest, the timber being of the greatest variety—pine, ash, oak, and cypress—while Mississippi, Florida, and Arkansas are equally good fields for saw-mills and lumber-yards. New Orleans, indeed, is the center of the largest section of wooded lands in the Union, and will in time wrest from Chicago its claim to be the lumber capital of the country; and from Cincinnati, the manufacture of furniture, boxes, etc. In the many estimates of the wealth of the South, this is something that has never been included. There will be a department especially devoted to Southern woods at the Atlanta exhibition.—*Southern Manufacturer and Builder.*

Steel Paint.

A new industry or manufacture has been undertaken in England, namely, the production of paint from steel scale, for the protection of iron and steel from corrosion in any position and in any climate. The scale for this purpose is that which falls from the metal as it passes through the rolls, and this is ground by special machinery until it becomes as free from grit as flour, and then it is intermixed with boiling oil and coloring matter. The paint is of two kinds—the anti-corrosive, for use above water, to prevent structures from rusting, and the anti-fouling, for use under water, to prevent animal and vegetable life from attaching themselves to ships' bottoms and other iron work. It is claimed that, if painted with two coats of the composition, a vessel may go to India or Australia, and return with a clean bottom; the anti-corrosive covering, it is also asserted, is much more effectual for blast furnaces that gas tar.—*Leffel Mechanical News.*

☞ **Subscription price of this journal for 1882 will be $2.00 in advance.**

The History of the Steel Square.

Being a History and Description of the Square. Methods and rules given by which the length and bevels are obtained of all kinds of rafters, braces, collar-beams, brackets, etc. Its application to the various cuts in stair-building. The whole designed to be a complete *help* to mechanics, by which they can work in a systematic manner all the various problems in regard to the *cuts in carpentry.*

It was not our intention, in commencing this series of articles, to illustrate any part of the machinery connected with the manufacture of the square. But during the past month we have received letters from different parts of the State, asking us to give a cut of the machine that could stamp the marks, divisions, and numbers on the square with such absolute precision. To please such inquirers, and others we hope as well, we introduce to our readers two cuts of Bement's machine for stamping squares. These machines, we believe, are owned exclusively by Sargent & Co., New Haven, Conn., they having secured the patent; these machines work automatically, and with the precision of a cylinder printing-press.

As will be observed by looking at the cuts, the machine consists of a pair of vibrating jaws working upon axes parallel to each other, so that the faces of said jaws approach each other as they move into the same line; one of the said faces being provided with dies, corresponding to the figures or marks to be made upon the square, and so that the blade of the square carried between the jaws as they come together will be depressed by said dies.

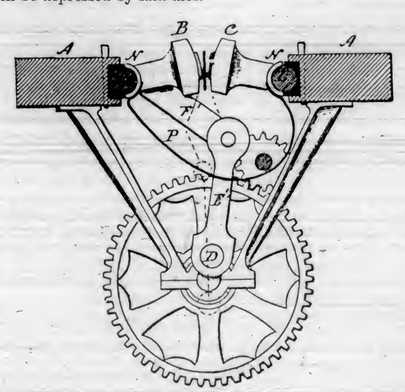

Fig. 1.

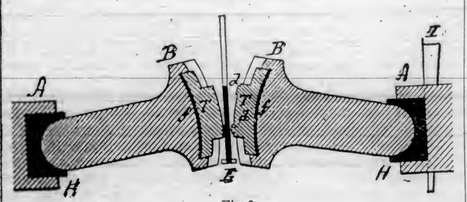

Fig. 2.

Fig. 1 is a vertical section of this machine. *A* is part of the frame work which supports the jaws *B* and *C*. These are hung in a bearing on the frame, so as to vibrate up and down, the surface moving in an arc of a circle drawn from their bearings. A vibratory motion is imparted by a crank, *D*, through a connection, *F F*; in order that the two parts may move perfectly together, so that there will be no sliding of one upon the other, this connection is made to but one of the jaws; between the jaws a plate, *E*, is arranged, supported vertically by guides. This frame is connected to each of the jaws by two sets of flexible straps; one set is connected with the plate above, or at the upper end, and with the jaws below; the other set is connected at the lower end with the plate, and at the upper end with the jaws respectively. Hence, as one jaw moves, the straps in connection with the other jaw causes that to move with it to the other extreme, and to carry with them the plate *E*.

When standing in the extreme upward and open position, the blade is placed between the jaws against the frame *E*, the frame serving as a guide for the proper position of the blade, and the jaws, their being turned, carry the blade down between them, the relative position of the faces of the jaws being such that the blade so carried in between them will be impressed by the dies, so as to leave the impression of the dies on the blade. In order to adjust the jaws so that their faces may bear the proper relative position to each other, the bearings, *H*, of the jaws are set in grooves in the frame, as seen in the figure, and in rear of these bearings I place wedges, *I*, so that the bearings may thereby be forced forward or be allowed to fall back and thus adjust the jaws to the desired relative position.

To hold the jaws back in their bearing; the jaws are formed with trunnions at their ends, and over these trunnions a cap, *N*, is set, as seen in the figure, and a spring, *P*, placed between the caps, the tendency of which is to force the jaws apart. In order to provide for slight variation in the thickness of the blade, the faces of the jaws, *T*, are made separate from the jaws, and back of the faces are placed india rubber cushions, as shown at *f*, in solid black in the figure, so as to allow the jaws to yield to slight variations in the thickness of the blades.

We have not the space to illustrate further the machinery required for the manufacture of the square. It will be readily understood from the foregoing, the amount of time, patience, and perseverance that was required to bring such machinery to perfection.

After the squares have been lined and stamped, they are sent to the receiving room, where great care is given in polishing and packing the squares for shipment. And it may be safely said that whatever part of the world one may be in, if he has use for such a tool, Sargent's Square No. 100 stands at the head of the list for accuracy and finish.

We have now given a full history of the square, with an account of its manufacture, and of the machinery used. In our next we will give a full DESCRIPTION OF THE SQUARE, explaining the use of every figure and line upon it; to be followed by monthly articles on the USES OF THE SQUARE, in which we will give rules for obtaining the angles, length, and bevels of every description of rafters, hips, jack-rafters, braces, purlins, collar-beams, etc.

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"The Sand-Hill Rangers."

Such is the designation applied to that class of pretending mechanics in the region of San Francisco, who are as ignorant of all true and correct mechanical principles, as the braying ass is of the sanctity of the Sabbath, or the sacredness of holy edifices devoted to the worship of the Most High. California has been more cursed than any other place on earth, by the inflictions which such men inpose upon mechanical pursuits. They are worse than the seven plagues of Egypt, because these had an ending, and the people of Egypt recovered from their scorge; and should similar visitations or other calamities come upon the people of the present period, every means that might be employed as a remedial or removal agency would be recognized as legitimate and proper. If it should happen again that showers of frogs should fall upon the earth, measures would be devised and adopted to destroy the unwelcome croakers; and even if the other class of smaller vermin mentioned in the list of the seven plagues should swarm upon mankind, the comb manufactories of the United States would soon supply a sufficiency of the fine-tooth toilet implements to free the land. But the class of creatures known as sand-hill rangers, which swarm and settle in all places, to the common injury of worthy mechanics and artisans, must be tolerated as legitimate evils, enjoying certain personal "inalienable rights," of which, under the laws of the land they cannot be deprived, and for the suppression or restriction of which there exists no legal state or national enactment, nor any standard of business or moral equities, however hurtful and injurious the course pursued by such parties may be to men who have qualified themselves as mechanics, and deserve encouragment and protection against all hurtful influences. The same class of men are known elsewhere as "botches," with which every mechanical pursuit is more or less incumbered. If such men confined themselves to pursuits for which alone they are qualified, they would fill a more fitting place in life; but when those who possess a low order of intellect, are coarse and rude in every thought and conception, have never passed through any of the necessary trainings which alone can qualify for mechanical mastery in any line of operations, assume the character of competing or master mechanic, it is demoralizing in the extreme. Competent men very justly complain that they are often brought in competition with this lesser class, and most naturally denounce the unequal condition which exist in this connection, and the disposition of owners to countenance and encourage those who enjoy no other recommendation in a mechanical sense that "cheapness"—a bait by which so many have, from time to time, been caught. For those who undertake work at less than a fair value must necessarily, and do, seek every advantage to "save themselves," without any regard to the character of the thing produced. And in men who are strangers to the ennobling inspirations of mechanical pride, all the better sentiments are lost in the desire and determination to secure profit at any sacrifice. And when sacrifices are to be made, it is an assured fact that the officiating personages will secure their own safety. Hence, owners who engage such men, simply upon the basis of low figures, are guilty of an indiscretion which shows lack of wise discrimination and judgment; for the same rules of values which applies to cheap goods and merchandise attaches with equal force to mechanical productions and operations.

The effect of all this is most injurious in a very broad sense—far too broad to be comprehended in a single article in this journal, unless every column should be occupied, and then the whole story could not be told.

To the question, Is there no practical remedy? we answer, There is none within reasonable reach. To effect a remedy a decided change in many directions would be necessary; changes of such magnitude that even the bravest and most earnest philanthropist would falter at its undertaking, if impressed with the greatness and extent of the necessary work. "Public sentiment" would have to be reached, and remodeled, and educated, to recognize and appreciate the difference between, and value of, mechanics *as a fact*, and mechanics *only in pretenses;* the creation of a willingness on the part of those having work done to pay its full value; the establishment of a system which would discriminate between the value of the services of the competent and the incompetent; the reformation of the men who devote their time and baser energies to the injury of all mechanical arts and sciences in every connection; the elevation of mechanical pursuits to that higher plain of operations which would secure perfect fidelity, honesty, and integrity as a rule of action;—and, in a word, correct and purify every influence surrounding the various pursuits of labor, relieving them from the enslavement of unequal and injurious competition. But as all this, or any part thereof, can only be effected by touching the purses or pockets of those having work of any character done, it is safe to say that the evils fastened upon the mechanical arm of our great country cannot be removed. For gold is the god which most men worship, and the idol before which they bow; and that which proposes to diminish one's bank account or cash on hand, beyond *unavoidable* necessities, at once produces an antagonism within the realm of impossibilities.

Individual Advancement of Mechanics.

While an honest difference of opinion may exist between those who pay and those who receive wages, there is one point upon which the more thoughtful of both classes are agreed, and that is the impracticability, or more than that, the impossibility, of giving to each individual, amongst a large number of workmen, his share of the total amount paid as wages. It might, at first thought, appear that employers would be the least interested in this matter; but some experience, and a good many expressions from this class, lead to the belief that they appreciate even more than the workmen themselves do, the fact that strict justice cannot be done in this respect.

The classing, for instance, of a certain number of men as machinists, and consequently entitling them to so many dollars and cents in the way of wages, has too much of the old patriarchal economy about it to suit the times; and the matter is not particularly bettered by dividing a shop's complement of men into a first and second class, and grading their pay accordingly. The fact is, that the services of every individual mechanic have, or ought to have, a value as distinct as his own individuality, and should be paid for without the slightest reference to anything else. Nothing else will bring out all there is in a man, and nothing is more needed at the present time than individual progress. We say "ought to have," because the plan of leveling men in respect to wages has a powerful influence towards leveling them in respect to ability. In a world of dollars and cents, these representatives of something to be bought with them are the great incentive to action, and when you make it manifest to the individual that painstaking on his part will not put him in possession of more of them, that incentive is lost.

It is natural, and in every way commendable, that a man should endeavor to *earn* and *receive* as much in the way of wages as possible, but improvement in this respect, as in every other, requires exertion; in the case of the mechanic, for instance, an exertion in the way of study beyond that required to enable him to maintain his present standing. It is in the best interests of all, that the inducement shall be such as to invite every one to make his best efforts. In the nature of things, a large proportion of those engaged in mechanical pursuits will continue to be what are in contradistinction to proprietors, superintendents, foremen, etc., termed workmen. This does not, and particularly it should not, imply that they know less of the business of their trade; but before the proper incentive to action can be offered to, and accepted by, mechanics, it must be evident to them, that, in lifting themselves up, they are not to be dragged back by others; and it must also be equally plain to those who employ them, that, in paying one man the wages to which he is justly entitled, they will not be expected to pay twenty men more than they are entitled to receive.

No one thing can do so much to improve the mechanical standing of the country as a knowledge of the fact, that swift and substantial recognition awaits every material advance of the individual workman; and further, that workmen should see that no jealousies on their part stand in the way of such a consummation.

It is a point worthy of more consideration than it has received, both from those who pay and from those who receive wages, whether more cannot be done to develop the latent abilities of some mechanics, thereby directly benefiting all parties immediately concerned, and indirectly benefiting the whole country.—*American Machinist.*

To Get Corn, You Must Sow Corn.

The enterprise displayed and the power possessed by the press of the present day are the outcome of appreciation and liberal patronage by the masses. While many have reaped wealth and fortunes by publication ventures, people of all classes have received in return for their small subscription outlays an amount of information and practical knowledge which cannot be calculated by any standard of values. Hence, it becomes an essential necessity with every reader of public journals to seek and sustain the purest and best, and liberally aid such as aim to instruct and benefit those who peruse their columns. In this respect, there is no journal published in the English language which more sincerely and honestly proposes to furnish its readers with more valuable and instructive matter than the *California Architect and Building Review*—information the more valuable, because involving matters bearing largely upon home, health, and life comforts, the developments of State resources, the wise, judicious, and proper improvement of real estate, and the many sanitary and other sciences which contribute to the happiness of mankind.

Hence we say, EVERY CITIZEN OF SAN FRANCISCO, and the people of the entire Pacific coast, should extend a hearty support to this the only journal of its kind published west of the Rocky Mountains, and the only channel through which the innumerable important and valuable facts connected with home, building, sanitary, and other pertinent sciences can be obtained. The daily press furnishes occasional items upon these subjects, but each number of this journal is a whole volume in itself, as compared with any daily publication.

Its further claims to support, particularly upon this coast, are its recognition by Eastern and European journals as the *standard and official journal* of the Pacific States in all matters architectural, and others represented in its columns. Consequently, a large proportion of its articles are from time to time copied into journals published in other places, and through them spread all over the country. It therefore becomes the duty of every individual interested in the welfare of California and the western States generally, to do all that may be in his power to increase our subscription list, as by doing so it will enable the carrying out of all the grand purposes contemplated by us, and assist us in producing a journal which shall have no superiors on this coast or elsewhere.

A Word in Defense of Master Plumbers.

So much has been said and written in condemnation of plumbers and plumbing work generally, that one might fairly conclude—accepting the statements made as the criterion of judgment—that plumbers are about the least honorable and trustworthy class of mechanics engaged in building operations. But as there are exceptions to all general rules, it would be very severe and harsh indeed to contend that no exceptions exist among plumbers, and that, to a man, they are guilty of all the bad things charged against them as a class.

Such a proposition could not receive the indorsement of intelligent men; for while there exists innumerable illustrations of shameful and disease-producing plumbing work in all parts of the United States and Europe, there are also to be found in every city splendid specimens of mechanical skill and proficiency in the plumbing art. And it is but just to state further, that numberless defective jobs of plumbing work are the result of carelessness or incompetency, or in many instances, what is still worse, the willful neglect and reckless indifference of the journeyman intrusted, in good faith, with the proper execution of the work. Master plumbers are frequently made the responsible victims of their employees' bad doings; nor would it be safe or consistent to attempt to abate this responsibility, as weighty issues hinge upon every piece of plumbing work done, particularly where connections are made with the sewers. And although the master plumber may *intend* ever so faithfully and honestly that every thing shall be unexceptionally perfect, that good *intent* is valueless as against the results which must necessarily flow from every imperfect piece of plumbing work done. Consequently, the point should be unerringly guarded, that no workman be intrusted with important work, whose mechanical skill, sanitary knowledge, and reliability is not beyond all question.

But this other fact also exists, that journeymen are often furnished with all the necessary best material in abundance, and receive strict orders to observe and practice the most correct rules, and the latest developed improvements in plumbing science; but from the force of habit, or a perverse and persistent rejection of the more advanced theories, or an obstinate determination to "do it my way," or the "old way," bad things are repeated in thousands of cases, against the master plumber's wishes and instructions. And many of these defects are perpetrated in a way and manner beyond easy detection, and remain unexposed until their bad effects develop themselves in some tangible form. All this goes to establish the necessity for care and watchfulness on the part of those assuming "master plumber" obligations and responsibilities. And it is a great pity that means cannot be devised which would correct the wrongs which exist, and purify plumbing operations to the extent of freeing them from the severe censure cast upon them.

The great hue and cry is raised specially against plumbers and bad plumbing work; and justly so, as these, more than all else, affect the sanitary conditions of every house and building erected. But dishonesty and unfaithfulness in other connections and departments of building operations, as an abstract proportion, are no less to be commended than the bad doings of dishonest and unfaithful plumbers. The brick mason who uses soft bricks where the best qualities are contracted for, who uses but two barrels of cement where three is called for, who *throws* the bricks in the wall where they are required to be *properly laid and well bedded*, is no less dishonest than the plumber who performs unfaithful work. The carpenter who uses second-quality materials where No. 1 is specified, who furnishes or drives one nail where three are required and called for, who executes work generally with as little regard as possible to neatness and correct workmanship where specified to be done in a "workmanlike manner," is no nearer virtuous and saint-like than the wicked sinner who does "wretched plumbing work." The painter who studies the adulteration of every admixture of paint where purity of material is contracted for; the plasterer who uses five barrels of lime where six is called for and required to make good work, and ten pounds of hair where fifteen is the quantity for which he receives pay; the tin-worker who fraudulently uses coke tin, where I. C. leaded plate or cross-tin is specified, who burns and corrodes with acid where resin solder is required and should be used; the foundryman who delivers castings five to twenty-five per cent. lighter than the specified weight, or marks up weights, and charges ten per cent. more pounds than is delivered; those who break windows and "*swear to God*" that they knew nothing about it; the "mill-man" who uses unseasoned lumber, and pledges his honor that it as "dry as a bone," who works in twisty-grained, sappy, gummy wood, fit only for the flames, where the best qualities are the standard specified, who substitutes one and one-half or one and three-fourths inch sash-pullies, to cut and ruin the sash-cord, for the sake of saving four to ten cents in the cost of a window-frame, where necessarily larger pullies are provided for; the stair-builder who uses unseasoned lumber in stair work, and erects stairs which in a month or two after they are finished shrink and squeak, producing "a horrid noise" every time they are ascended; the mantle-man who sets mantles so carelessly as to endanger the destruction of the building by fire; nor any other man or set of men who perpetrate the thousand and one bad things so often and generally done in connection with the erection of buildings—are a whit less dishonest and condemnable than the meanest plumber that ever wiped a joint, or set a patent water-closet, wash-basin, or sink defectively: barring this difference, that the rogueries of the latter tamper with human health and life, while the equally *dishonest* acts of the others simply touch the owner's pockets.

Upon the simple point of honesty and integrity, every man who fails to do fairly and faithfully every thing that he agrees to do is dishonest to the extent of his wrong-doings; still the greater censure is deserved by plumbers, because unvarying perfectness in their work is an essential necessity to the sanitary condition of buildings; and we should approve and indorse all such laws as would attach criminal liability upon every plumber who should be guilty of executing defective plumbing work; and such there should be, as well as laws to punish medical malpractice.

To Draughtsmen and Architects.

For mutual accommodation and convenience, we shall hereafter keep a registry in the office of this journal, for the purpose of entering the names of all draughtsmen seeking engagements, and architects requiring additional help, so far as they respectively may see fit to avail themselves of the opportunity offered.

The reason for this is, that numerous applications have been made to us by draughtsmen seeking employment, and architects requiring help; and had we been in possession of the necessary information as to names and addresses, we might have served the interests of both parties. This we propose to do hereafter in the manner suggested, and invite all draughtsmen seeking situations to call and enter their names; and if architects, who may wish to secure additional help, will make application by letter or personally, we will cheerfully extend them all the information and assistance in our possession.

The Classic Orders.

Once the basis of all meritorious architectural conceptions and practice, are so far disregarded nowadays, as to be seldom adopted in their purity, although largely drawn upon in many cases to assist modern æsthetics and conceptions in architecture. But the days of following have gone by, whether the departures and new originalities are or are not improvements upon the old. During the present century, a new era in developements of every nature has come to pass. Turn our thoughts and scrutinies in whatever direction we may, we find "changed" written upon the face of everything that can be named, within the spheres of domestic life, in home circles and associations, in manners and customs, in all sciences, theories, and practices, and even in religious beliefs and doctrines; in all, the old has passed away, or has been so much changed by the prevailing spirit and sentiments of the latter years of the nineteenth century, that it may be claimed that the generations of the last fifty years have remodeled the affairs of the universe, bringing to the surface, and into practical use and application, tens of thousands of hitherto latent agencies, powers, forces, and developments—material, intellectual, and elemental—which for ages have remained unrevealed within the great laboratory of Nature.

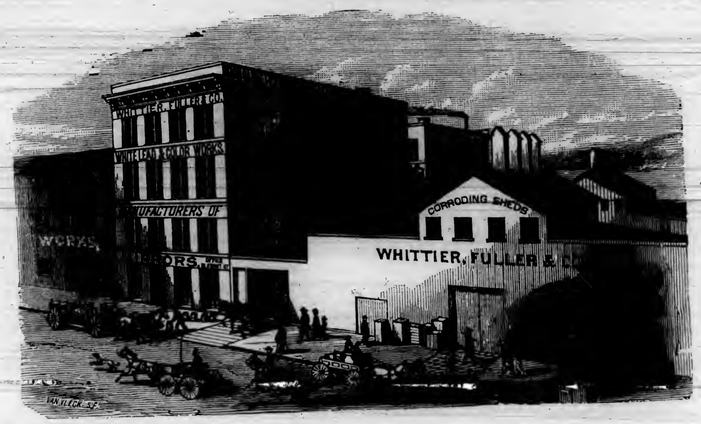
It is therefore reasonable that the progressive spirit of the age should enter into and influence all architectural and building sciences; nor would it speak well for those who profess to be disciples of the great designers of the earlier periods, who conceived and perfected the "grand old orders," to admit, that while progression and advancement is marked upon all things else, that improvements in harmony with present tastes in architecture cannot be made.

Amidst the mighty rush of new conceptions, originations, and inventions in all things, architecture has kept pace in attempts, if not in perfectness and beauties, with the most advanced ideas of the times. The theories, teachings, and practices of our forefathers and the ancients are in numerous particulars discarded, or so modified and simplified that the learner of today must hold the "old works" as mere "books of reference"; the principals and rules of execution now in practice being so greatly at variance with the old, that the study of the new becomes a necessity to qualify for present practices. In scarcely any connection are the roles, principals, and practices of ten decades ago strictly adhered to; and the architecture of the present period is made conspicuous by its contrasts with the examples of olden times. But in no other connection are changes and the introduction of new ideas more difficult, for the reason, that the effects of new things in architecture are seldom fully understood or realized, until presented in practical demonstration, at greater or less cost and expense, when, whether good or bad, they must remain to the credit or discredit of those who originated them. So that all attempts of architects to introduce new conceptions, are more or less surrounded with uncertainties which can only be favorably relieved after constructive delineations shall have secured approval and admiration.

Certain timbers of great durability, when framed together, act upon each other so as to produce mutual destruction. Experiments with cypress and walnut, and cypress and cedar, prove that they will rot each other while joined together, but on separation the rot will cease, and the timbers remain perfectly sound for a long period.—*Leffel Mechanical News.*

Send for a copy of the "Steel Square and its Uses," handsomely bound and illustrated. Price 75 cts.

PIONEER WHITE LEAD WORKS.



What is required to institute and carry to a success a manufacturing enterprise? Nature is generous with her gifts; but she forces man to the exercise of his endowments, to develop them, and give the substance a form for his appreciation and enjoyment.

The very many natural resources of this Coast are marvelous, and they impress all thinking visitors with the conviction of a great future. With but few exceptions, these wondrous gifts of Nature are at present but mere curiosities, and are spoken of and written of only as such—with prosy theories on their practical value if utilized.

To the business man, scientist, or to the practical thinker who comes amongst us, it is a matter of surprise that our people, with their wealth, do not develop these resources, and build up our coast with a working and useful population, instead of pursuing the selfish course they are now, which is that of the usurer.

Our capitalists and business men are blind to their own interests, in not interesting themselves in the establishment of manufacturing enterprises, which will secure for them a certainty of fair returns for their encouragement.

The people of this Coast cannot afford to let existing opportunities lie idle, *as a dependency on foreign sources means our impoverishment. Manufacturing guarantees the reverse, as it furnishes employment to, and retains among us, consumers,* that vital quantity in a progressive and permanent prosperity.

We have much pleasure, however, in being able to refer to some notable exceptions to the general apathy of our business and moneyed men.

Heading this article will be seen an illustration of the results of the energy and public spirit of one of the leading and pioneer mercantile firms on the Pacific Coast.

Messrs. Whittier, Fuller & Co. several years since commenced the manufacture of White Lead in this city.

They purchased ground on Fremont street, between Howard and Folsom, covering a surface of 137 6-12x275 feet, and thereon erected factories and sheds, for the purposes of the business.

Their whole works, machinery, and appliances, are on the most approved plans, and excel in detail and completeness those of any other White Lead factory in the world.

This is essentially a *home institution, from the ground through to the finished product of their mills.*

Few can realize the importance to the whole community of this enterprise.

In the first place, it encourages the development of our mines, as all the pig lead used is the production of our own coast.

It thus gives the Miners employment.

As all lead ores have to be smelted to get the metal,

It thus gives the Smelters employment.

The transportation from the producing points invokes aid of the carriers:

It thus gives Teamsters and Transportation Companies employment.

A very large quantity of oil is used in the grinding of the lead. All this oil is crushed from seed raised in this State.

It thus employs the Farmers.

All the pots used in corroding-sheds are made here.

It thus gives employment to the Potteries.

The maintaining of a factory requires the services of machinists, millwrights, and laborers:

It thus gives employment to an Army of Operatives.

And in fact, everything in and about the works is of home manufacture. *Now, what does the employment of the many branches of industry hereinbefore enumerated demonstrate?* This fact: that as they are *all consumers,* their wants *engage every business* on the Coast to supply them.

The product of the

Pioneer White Lead Works

Is not excelled by any other make in the world. It is guaranteed *strictly pure; it is white, very finely ground,* and has *superior body* and *covering properties.*

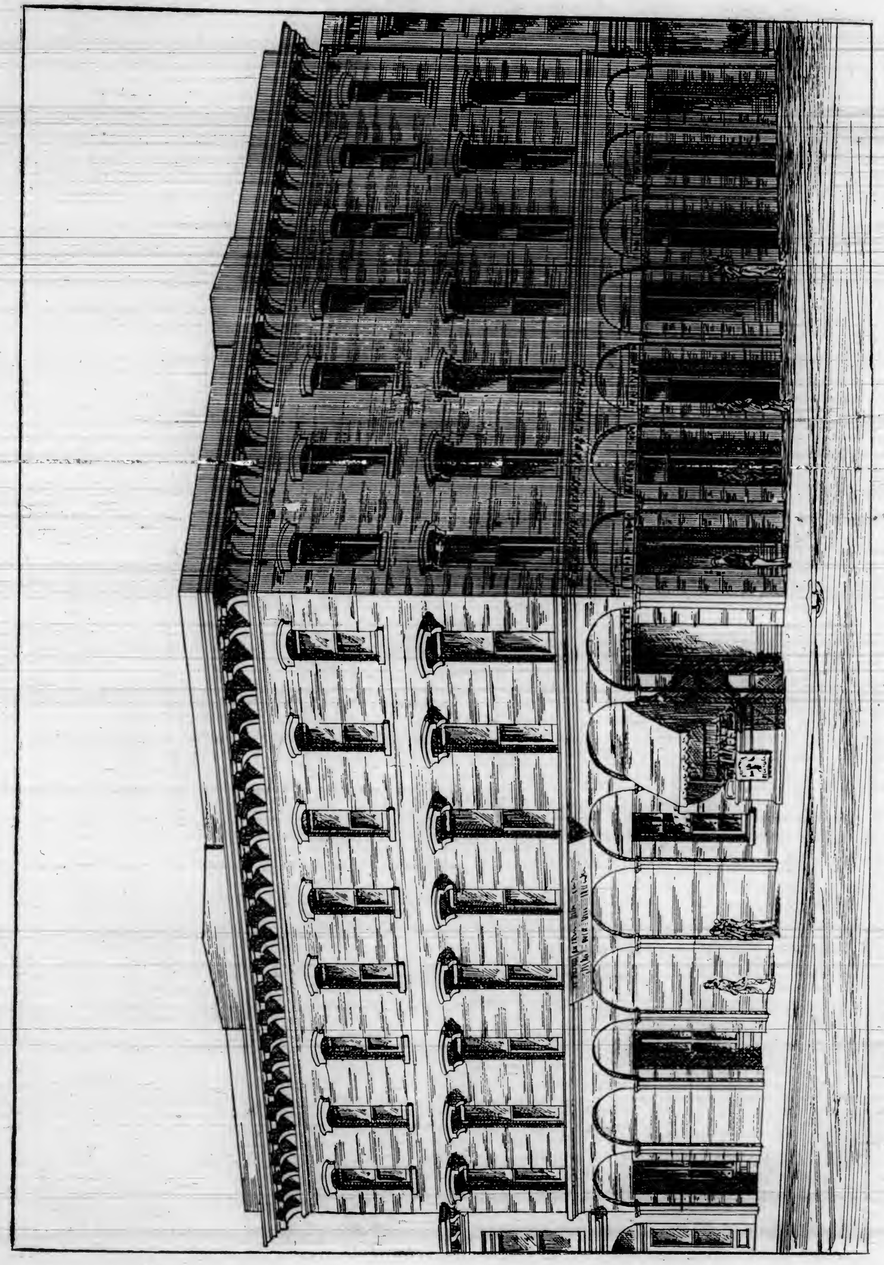
The manufacturers announce their determination to always offer it to consumers at less prices than any imported brands.

As against the imported, there would be great economy in its use, even at equal prices. All painters know that White Lead that has been packed any considerable time loses a great deal of its vitality, in the absorption by the kegs of a considerable quantity of the oil; leaving a hard mass in the keg, involving time and expense in its extraction and working up for use, and a costly addition of oil.

The Pioneer being all freshly packed,

all this expense is avoided.

We know what the White Lead is, and we have no hesitation—in fact we take pleasure—in recommending our brother architects to write it in their specifications and to *insist on its use: first, on the score of quality; second, economy; third, the general benefit to all of us.*

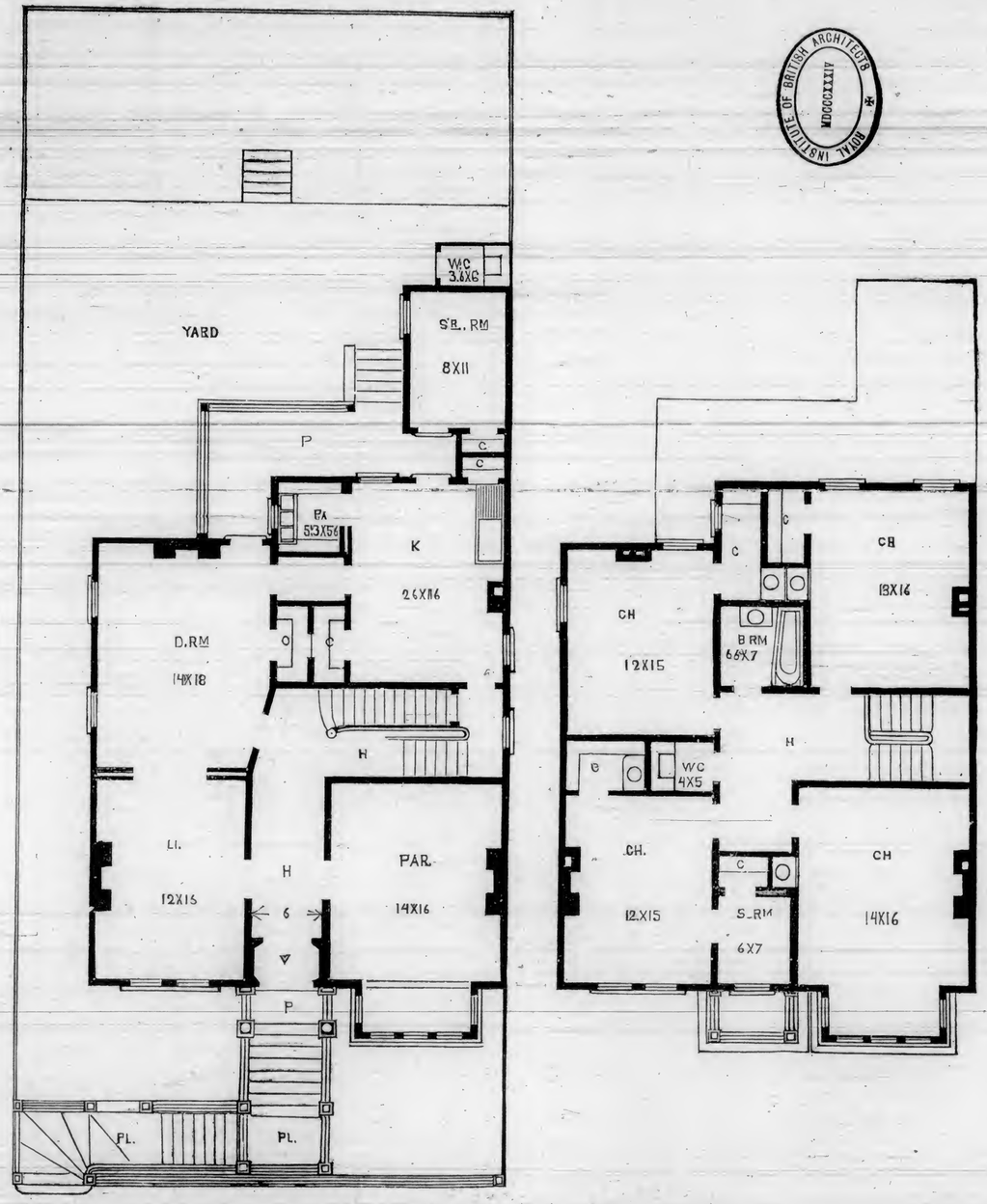


THE FIRST "GRANITE FRONT" BUILDING ERECTED IN S. F., 1851.—PLATE I. SEE "OUR ILLUSTRATIONS."

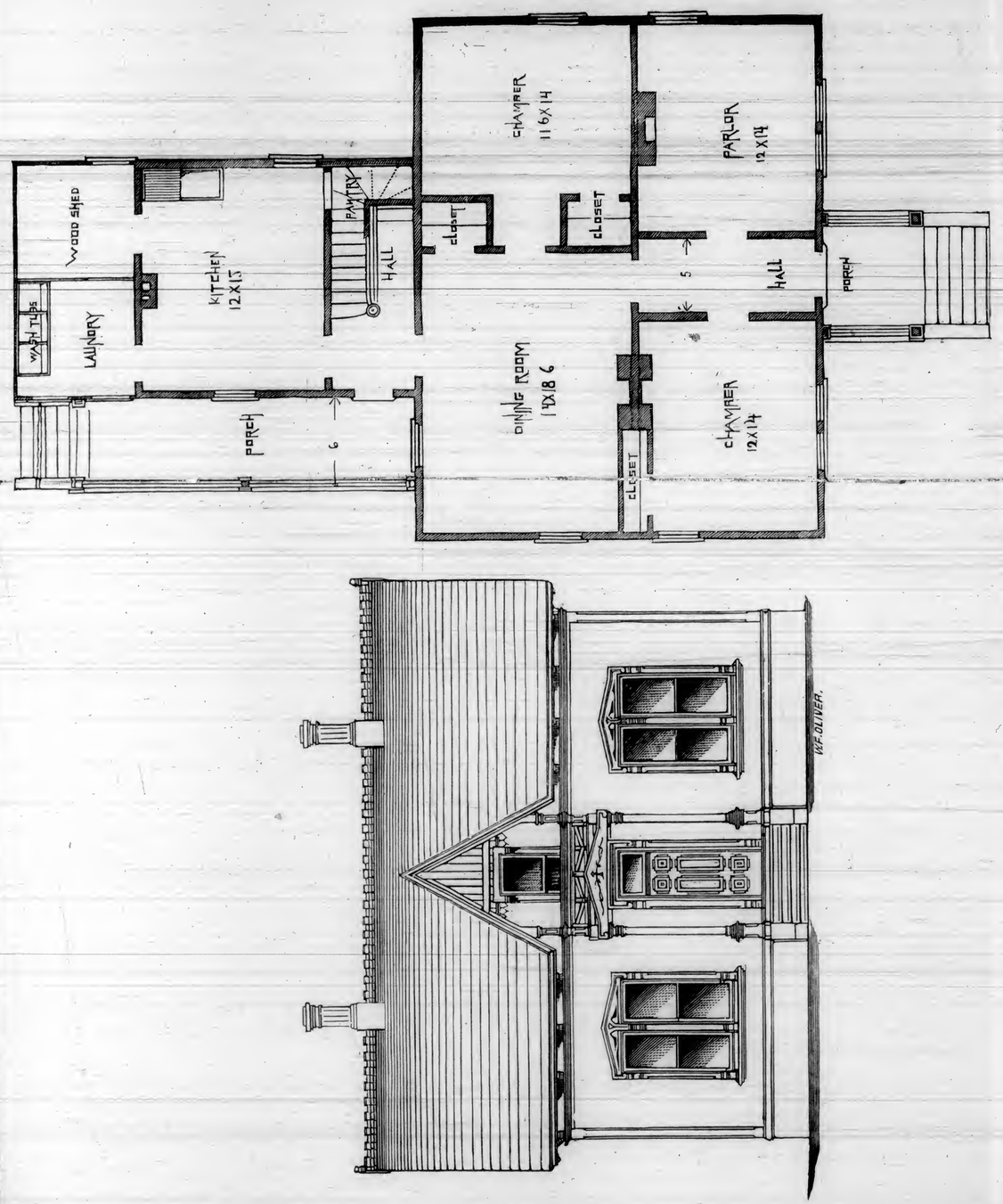
ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

RESIDENCE OF C. H. LIGHT, CALIFORNIA STREET.—Plate 2.

ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV



FLOOR PLANS OF C. H. LIGHT'S RESIDENCE.—Plate 3.



ELEVATION AND PLAN OF ONE-AND-A-HALF-STORY COTTAGE.—PLAN 4.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

BUSINESS MANAGER OF ARCHITECT:—How many architects are there in the United States? L——, San Jose.

ANS.—By the last census, about 2,000.

BUSINESS MANAGER OF ARCHITECT:—Why do draughtsmen use india ink in preference to liquid ink? APPRENTICE.

ANS.—In the first place, it gives the finest and clearest black of any ink known; second, it is unchangeable; and third, it does not corrode the fine and expensive steel instruments with which it is used.

BUSINESS MANAGER OF ARCHITECT:—Is there any known remedy for the prevention of soot gathering in a chimney. L. R.

ANS.—It is said that such gathering of soot in a chimney may be prevented by putting a quantity of salt into the mortar with which the interior courses of bricks are to be laid. The philosophy of the method is thus explained: The salt in that portion of the mortar which is exposed, absorbs moisture from the atmosphere every damp day; the soot, thus becoming damp, falls into the fire place, and dangers of fire are averted.

BUSINESS MANAGER OF ARCHITECT:—Why is borax used in soldering any two sections of metal together? BEGINNER, S. F.

ANS.—Because it dissolves any oxides which may exist on the surface of the metal, and protects the latter from the further action of the air, so that the solder is enabled to come into actual contact with the surfaces which are to be joined.

FRIEND ARCHITECT:—I am much bothered sometimes with the tops of my oil lamps coming off; can you tell me of anything that will, by its application, be the means of making them stay on? Of course it will have to resist the action of kerosene. Mrs. W. J. B.

ANS.—Take 3 parts of resin, one of caustic soda, and 5 of water; this composition is mixed with one-half its weight of plaster of paris; this composition is of great adhesive hower, and is not permeable to kerosene.

THE VALUE OF SCRAPS.—Few people appreciate the value of little and apparently insignificant things. In some foreign countries the litter of domestic animals is carefully collected and sold to farmers. Not a few people make a living, gathering fertilizers in this way.

In the shops of jewelers, and others where articles are manufactured of gold and silver, great care is taken to prevent the waste of the precious metal; every particle of filing, scraping, or grinding is preserved for the assayer. The wheels upon which gold and silver have been polished, when worn out, are burned, and the fire develops particles of the precious metals which could not be seen by the naked eye. Even the sweepings, after great care has been taken to pick up every bit of metal that may have fallen on the floor, are preserved, and in New York City sell for $70 a barrel. It is calculated that when a jeweler's shop floor is to be renewed, the dirt accumulated in the crevices will more than pay the cost of the new floor.

It is said that the receipts from the sale of the refuse of starch mills, which is used by farmers as feed for hogs and other stock, constitute a large part of the profits, and that if this refuse could not be sold, some mills would be compelled to stop, or be run at a loss.

The paper "trimmings" of a large printing office, like the Harper's or Appleton's, are worth thousands of dollars a year.

Lumbermen have found uses for nearly every part of a tree, and scraps, that a few years ago accumulated so rapidly as to be a source of inconvenience, and consequently expense, are now sold for a good price, and are in great demand.

CALCULATING THE LENGTH OF RAFTERS.—D. M. W., of Caledonian Station, Mich., gives the following rule for ascertaining the length of rafters in roofs of one-third pitch, where there is no purlin. Multiply the width of the building by 6, and point off one figure to the right for inches; e. g. suppose the width to be 18 feet: 18 multiplied by 6 equals 108, or by the rule, 10 feet 8 inches is the length of the rafter required. This rule will work on any width of building.

Diphtheretic Plumbing.

There is so much carelessness and neglect of the simplest sanitary laws in a great part of the plumbing that is done nowadays, that it will scarcely be thought fanciful if we classify this sort of work under the general term, diphtheretic plumbing, since it is to the increase of diphtheria and kindred diseases that such work directly tends. It is a sufficient proof of the extent to which the evil in question has grown, that we find plumbers themselves admitting, discussing, and seeking a remedy for it. The plumber is regarded by some people as a being entirely devoid of conscience, with a clearly defined disposition to render the minimum of service for the maximum of pay. But the responsibility for bad drainage, defective plumbing, and impure air, rests quite as much with contractors and builders as with the plumbers. Bad plumbing is cheaper than good, and so far as what is visible on the exterior is concerned it looks about as well. The contractor, therefore, whose chief anxiety is to have the margin on his contract on the right side for himself, feels little uneasiness about the sort of air which the occupants of the house are to breathe. He pays for cheap plumbing, and the plumber gives him what he pays for.—*Boston Journal.*

Painters' Colic.

The painter is often asked what the painter's colic feels like. He could not probably describe it better than to say to those who do not wish to try the experiment, that if the strands of a rope, while being twisted together, should be passed through the bowels horizontally, and the whole abdominal viscera be twisted with it, a faint idea might be formed of the lead colic. It is supposed that painters, in the aggregate, pay an interest on their life of twenty-four per cent.—that is, they shorten their lives about two months every year for the privilege of following the noxious business, and getting a taste of the colic every other moon. In fact, it is statistically true that the average lives of painters do not come up to the standard longevity.—*Haney's Painters' Manual.*

Our Illustrations.

Plate 1 represents "*Parrott's Building*," which is particularly referred to in another column, under the head of "*Granite and Sandstone Fronts in San Francisco.*"

Plates 2 and 3 represent the front elevation and plans for Mr. C. H. Light's residence, now in course of completion, on the north side of California street, east of Scott street. Its compactness of arrangement, without "cramping" at any point, is a special feature. The cellar accommodations are not shown, but are ample and convenient. As is our custom, we say nothing about cost, as on a more level lot, and with "slop-shop" construction, the figures may be varied 25 per cent.

No. 4 is the elevation and plans of a neat and exceedingly convenient cottage, sufficiently explained by the cut. The cost of its erection can be made to vary from $1,800 to $3,500.

Timber in Brazil.

Within an era of half a square mile, Agassiz counted one hundred and seventeen different kinds of woods, many of them admirably fitted, by their hardness, tints, and beautiful grain, for the finest cabinet work. The muirapinima, tortoise-shell wood, undoubtedly the most precious wood in the world, is found in large quantity on the tributaries of the upper Amazon, where the water can be most easily applied as motive power. The pao de sangre, the rosewood, the pao de ferro (iron wood), or *Apuleia ferrea*, the various species of jacaranda known to natural history students under the name of *Dalbergia nigra Machaerium violaceum*, and *Platypodium elegans*, the white and black maraquatiara, the macacauba, the paso santo or holy wood, (*Kailmeyera*) and the saboarana, both of which are rivals of the most beautiful walnut, are wasted yearly on the Amazon in amounts ample enough to veneer all the palaces of Europe. Maurice Mauris, the explorer, believes that with the facilities which the Brazilian Government is ready to impart to enterprising industry, the export of these commodities would develop immense profits in the shortest time, while the capital invested need not be enormous. It is only necessary that these woods be introduced into the market to obtain a decided preference over those now most sought after in the two hemispheres. Still richer is the country in timber for the purpose of construction. The acapu (*Vouacapoua Americana*) is most plentifully found there, and often in the most imposing proportions. Mr. Mauris has seen dining-tables six feet in width made wholly out of one piece. The wood, like all its kindred, macaranduba and itauba, or stone wood, furnishes ship timber as durable as teak. The longer these remain in water, the stronger and harder they become. The former will compare the more favorably with the teak, inasmuch as it is more compact. A pistol bullet which will pass through an inch board of teak wood, will not penetrate half an inch into a board of acapu. The itauba tree, too, offers many advantages over teak; it branches off naturally into keels and ribs of any size, and is lighter and more resistant.—*Journal of Applied Science.*

Brain Power and Machine Work.

The day of brute force in the machine shop has gone by. The entire operations to-day are more of the brain than the muscle, and since some one must furnish the brain work, it is a pertinent question for the individual machinist whether he shall educate himself to supply the larger part of it, *and get paid for it*, or whether, on the other hand, he shall put himself nearer the level of the machine he operates, and allow some one else to get paid for thinking. This is a matter the mechanic has to settle for himself. *American Machinist.*

Sewer Gas and Its Dangers.

There is said to be a distinct, odorless, and non-analyzable element which has been denominated sewer-gas, and which is as deadly in its effects as sulphureted hydrogen. If this is true, it is seldom met with. The term sewer-gas is more commonly and properly applied to the pent-up foul odor which may be found in any sewer or its connections. It is easy to understand that this gas is laden or saturated with particles of decaying animal, vegetable, and excrementitious matter, which finds its way into the sewer. If this gas is breathed into the lungs, thus laden with poison, the blood must, of necessity, be contaminated. Further than this, the air which escapes from the sewer may bear with it the germs of contagious diseases, and deposit them where least expected. It is possible—it is probable—that the blood-poisoning resulting from the breathing of sewer-gas is due to chemical changes in organic matter which has been taken into the lungs. This may come from a sewer, catch-basin, drains, privy-vaults, or waste-pipes. Sewer-gas, or its equiqalent, is generated in an out-door privy-vault, but it comes so soon in contact with the surrounding atmosphere, that it is rendered comparatively harmless. The air which escapes from sewers into houses is dangerous, because it is not diluted nor disinfected by pure air, and because its confinement increases *its potency*. If all sewers were open at the top throughout their entire length, there might be no danger from the exhalations, except possibly from the germs of contagion which may have been carried into the sewers by water used in bathing the bodies of the sick. But this danger could not be so great as that which, to a limited extent, attends the breathing of the atmosphere which has swept through a sick-room, and which many people do unavoidably and with apparent impunity breathe. In some cities of Europe, sewage is conveyed away in open gutters, without serious discomfort or danger. In others, there are open man-holes leading to the sewers, and the gases generated are allowed to pass off freely and without danger. Sewer-gas is to be feared when it insidiously and persistently finds entrance to houses, offices, or building of any description in which people live or work. There are some people who believe it can do no harm; others know by sad experience that it is destructive of health, and robs life of enjoyment, but they imagine that they are helpless against it. Again: there are many thousands suffering from its effects, and they are entirely ignorant of the fact. In mercy to this third class, the warning note should be sounded; and for their especial benefit, as well as for those who know no remedy, the means for shutting sewer-gas out of houses, if there are any, ought to be made known in the fullest and widest possible sense.

The sanitary surroundings of the poor are so often the theme of pencil and tongue that it has come to be believed that death and disease do their work mainly among the middle and lower classes. Decaying garbage, cesspools, and miscellaneous filth, in gutter, yard, and house, are known to be hot-beds of malaria. Children in overcrowded tenement-houses and old rookeries standing on an island in some sea of stagnant water die by the dozens every week, and people allude to the circumstance as a natural consequence. But an emissary of death is lurking in the homes that are known as marble fronts, and he performs his duty with relentless certainty. There may not be so many deaths among the young on paved streets and in well-ordered houses, but there are delicate children and feeble men and women. The physician's skill goes far toward prolonging life, and so cheats death of immediate victims; but there is lack of ruddy health and vigor in brick mansions as well as in frame hovels, even though the former are supplied with all the auxiliary conveniences which ingenuity can invent. The man who can control his circumstances supplies himself and his family with the best food; secures ample recreation for the relaxation for his strained powers; enjoys the advantage of society—and, in short, avails himself of, and provides for those under his charge, all that is supposed to promote health. And yet he often rises from bed in the morning with a headache, and suffers from general depression; feels more weary than when he retired; is afflicted with a disordered stomach, due to dyspepsia, according to his physician; contracts catarrh and diphtheria, and often falls into the hands of a fatal fever. He seems exceedingly susceptible to changes in the weather, and his blood is always ready to absorb every poison that comes near him. The reason of all this is, in very many instances, that the houses in which these people live have defective drainage, and the street sewers are thus ventilated into them. Sewer-gas is a curse to marble fronts as well as cheap houses.

The construction of house-drains is now left almost exclusively to drain-layers and plumbers, who are permitted to do work to suit themselves alone. When completed, the work is so effectually concealed, that no one could find out, if he desired to, whether it was well done or not. The result is, that competition has reduced the work to a sham, and those houses which do not have defective drainage are an exception. The worst of it is, that the people themselves, who must suffer in consequence, do not realize this, and are so slow to learn the facts, that the penalty of death, even, has been and must be paid over and over again for the ignorance.

An essential element of sewer-gas is sulphureted hydrogen, a deadly poison. This is in itself a sufficient argument that there is danger in breathing sewer-gas; but, as a man knows that what fire destroys cannot be restored, and will not insure his house until his neighbor's has been burned, argument heaped upon argument will not convince many people that sewer-gas is as destructive of life as fire of buildings, until the actual results are placed before them.

Sewer-gas does not always kill. It poisons the blood of once healthy men and women, and destroys or cripples their capacity for business or enjoyment. It robs men of ambition, and women of beauty. It paves the way for specific diseases which would otherwise never send strong men to bed for months.

From a recent work entitled "Sewer-Gas and its Dangers," by GEORGE PRESTON BROWN, noticed in our "*Book Notices*," and for sale at this office.

Iron from Black Sand.

A valuable iron ore, in the form of black sand, exists in large deposits on the east beach of Block Island, and D. C. McCotter and another man from Brooklyn, N. Y., are going to use it in making steel. New processes, and a machine for separating the black sand from the silicon, have been invented, which clear 100 tons of sand in 10 hours. As the mineral ore pours out of the chutes it is placed in bags, each holding 112 pounds, and shipped to Hoboken, and thence to Rockaway, N. J. There it is loaded on wagons, and afterward taken to the furnace. It is mixed with charcoal, taken by elevator into the hopper and distributed into sixteen large cylinders holding about ten tons, and heated to a red heat; then it is tapped at the bottom and let down into a large oven still kept at a red heat, and there burns out all the charcoal. The iron doors are opened, the sand is hauled out into a large charcoal fire, and forms a mass which is hammered by large steam hammers into blooms, weighing form 200 to 300 pounds. Large buildings will soon be put up on the island, and, as the supply of sand is practically inexhaustible, the industry is likely to become important.—*Springfield Republican.*

Needed Plumbing Regulations.

We have repeatedly urged the necessity for the adoption of such protecting municipal ordinances or State laws as would, to some extent if not entirely, control and regulate those branches of mechanical operations, which so materially affect human health and life in our midst. We have effective enactments against the abuse of the brute creation, and the inhumane treatment of children in a physical sense, but the greater evils which produces a thousand times greater and far more general suffering, disease, and death itself in family circles, is allowed to continue without a single corrective effort. The medical faculty, without a dissenting voice, affirm that a very large proportion of the sickness prevailing among the inhabitants of San Francisco is malarial in character, and largely produced from causes arising from defective plumbing work and imperfect sewerages. But these serious facts and considerations are treated with singular indifference, receiving no practical remedial attention. If it is brutal and inhuman to beat and abuse horses, cows, goats, hogs, and four-footed beasts generally, is it not more cruel to permit abuses which inflict disease and produce death to human kind, even through the at present legitimate means of unskillful plumbing and sewer works? Why should women and children, in particular, be subjected to conditions which endanger their health and lives? The common law defines that "involuntary homicide" is that class of killing in which the "intent to kill" is wanting. But we ask, if a man, woman, or child is deprived of his or her existence by means lacking the "intent to kill," are they any more or less dead than if slain by the assassin's hand? To this there is but one answer, and no other conclusion can be reached than that, where death is caused by other than natural causes, a degree of criminality attaches. And this criminality is repeated and continued, because incompetent men are intrusted with the execution of important and intricate branches in house construction, because they "*offer to do the work cheaply.*" And so long as price-cheapness, and not competency and honesty of execution, is continued as the standard by which work is let by owners, just so long will increased disease and fatalities prevail in this or any other city where the same rules are practiced.

New York, Chicago, and other cities have learned to realize the value of these facts, and have wisely set to work establishing laws, which, to some extent at least, will exclude from practice or hold in check, that class of heartless men who care not what may be the result and consequences of their botchery and mechanical malpractice, so that they pocket the profits gleaned from their wretched work.

But unfortunately, the people of California are an enduring and patient set, not easily persuaded nor provoked to take any interest in matters outside of their respective personal routines; and before any special effort is made to follow the examples of the Eastern cities, a considerable amount of press preaching and exhortations will be necessary. But meanwhile, the managing *angel*—if such there be in charge of this department of life's matters—will continue to perform the functions of his position, and not fail to fulfill his mission, so long as owners of real estate and the public authorities remain indifferent. But we may be answered, that this subject is discussed and talked about every day; yes, so it may be, but it is only *talk*. There has as yet been no *practical doing* in any direction of a public or general character, and talk will never accomplish that which can be done only by the adoption and practical application of wise, mechanical, and scientific principles.

☞ Subscription price of this journal for 1882 will be $2.00 in advance.

Granite and Sandstone Fronts in San Francisco.

In an October number of this journal, it was stated that "*as yet no marble, sandstone, or granite fronts adorn the street architecture of San Francisco.*" We now propose to correct and explain away in detail, so much of error as is contained in the statement quoted; admitting at the same time, that it should not have occurred, as the buildings hereinafter referred to were erected under our personal observation; but those which should have been excepted are so few in number that they were for the time being overlooked. The following will show the substantial facts in this connection.

"*Parrott's Building,*" situated at the north-west corner of Montgomery and California streets, was the first "granite front" building erected in this city. It was built for Mr. John Parrott in 1851–52, with a frontage of 65 feet on Montgomery, and 76 feet 6 inches on California street, and three stories in hight above sidewalk.

The stone used in this case was "China granite." The plans were prepared and sent to China, and all the stone cutting done by Chinamen, and shipped to San Francisco. In the erection of the building, the blocks—being marked and numbered—were carried up incline stagings to their proper places, in rattan slings suspended to poles, or Chinese carrying-bars, upon the shoulders of Chinamen; no hoisting apparatus being used by them. The building as it now stands is represented by plate No. 1 in present issue. Prior to 1855, "other granite fronts" were erected in the regular order of their correct dates of erection.

"*LeCount & Strong's Building,*" 417 Montgomery street, four stories above sidewalk.

"*Masonic Building,*" 420 Montgomery street, 38 feet frontage, and four stories in hight above sidewalk.

"*Express Building,*" north-east corner Montgomery and California streets, 69 and 63 feet frontages respectively, and four stories, with the first story only of granite.

"*Armory Building,*" same as the "Express Building," with frontages of about 60 and 60 on on north-east corner of Montgomery and Sacramento streets. The three last named were erected for Mr. Samuel Brannan, and from the best information obtainable, the granite was also imported from China.

"*Steve Whipple's Building,*" on Commercial street, four stories above sidewalk, all granite front.

614 Washington street, erected in 1854 of imported stone, marble in part or as a whole, four stories.

"*Selby's Building,*" California street, between Battery and Davis streets, two story.

All of the above are "old time structures" of the plainest character, and there may be a few more which have escaped notice, but their importance is so trifling, that they would add but little to the interest of the subject in hand, if particularly mentioned.

Later.—The two finest specimens of "granite fronts" were designed by Mr. David Farquharson as follows;

"*San Francisco Stock Exchange,*" erected in 1876–77, having a frontage of 77 feet 6 inches on Pine street, by a depth of 137 feet 6 inches, and a total hight, from sidewalk to main cornice, of 85 feet. It has office basement, and four stories above, and cost in its construction about $400,000. The main street front and the two sides, fronting on courts, are all of granite, from the Penryn and Rocklin quarries, Placer County, Cal. The columns and portions of the street front are highly polished. A handsome tower rises to a considerable hight above the main cornice.

"*The Real Estate Building,*" on Montgomery street near Pine, has a frontage of 45 feet, by a hight of 73 feet above sidewalk to main cornice, and mansard roof and tower additional. The front is of Penryn granite, portions of which are also finely polished. In this there is also basement offices and four additional stories. Its cost was about $90,000.

There are a number of buildings in which granite has been partially used. The most conspicuous of these is the *United States Branch Mint*, corner of Fifth and Mission streets, the basement of which is all of granite. Messrs. Wright & Sanders, achitects, are also introducing granite piers and corners and other parts in the erection of Mr. McCreery's building, now in course of erection at the north-west corner of Pine and Davis streets, amounting to over $30,000 for the granite work alone, with total cost of building about $160,000.

"*McCreery's Building,*" 310 Pine street, and 211 Sansome street, were designed by Messrs. Wright and Sanders, with Penryn granite basements, and the columns of main stories, and the remaining portions of the fronts of "Goodrich sandstone," San Jose.

OTHER STONE FRONTS AND BUILDINGS.

"*The Jenny Lind Theater,*" the present Old City Hall, was built for Mr. Thomas Maguire, the "veteran manager," in 1851, with Sydney sandstone front.

"*The Union Building,*" northeast corner of Kearney and Merchant street now owned by the city, and made part of the Old City Hall, is in part a *Benicia sandstone* front. But as this stone at the time of its introduction—about 1855—was considered soft and weatherable, it failed to create a large market, although time has demonstrated that it wears well.

"*The United States Branch Mint*" above the granite basement is built of Nanaimo—Queen Charlotte Island sandstone. But this experiment in building material from the northern British possession did not prove satisfactory, as from nearly every block of stone used there exuded a brown stain, apparently like iron rust, which required a force of workmen for several months washing the face of the building to kill the stain. It is only fair, however, to state, that the Government was badly treated in this matter, the croppings and top stone from the ledge being substituted for the better samples shown when the stone was adopted.

"*The Bank of California*"—Farquharson and Kenitzer, architects—has both fronts (67 feet 6 inches on California street, and 80 feet on Sansome street) of Angel Island bluestone. Its hight from sidewalk to main cornice is 42 feet 6 inches, and to top of balustrade 46 feet 3 inches. The cost was about $150,000. The block or lintel over the main front doorway weighed *seven tons.*

"*Of artificial stone*" there are several; but during the past few years this class of material for building purposes has died out in San Francisco and its use almost entirely ceased.

The purpose of this article being simply to enumerate the number of buildings erected with granite or stone fronts, we have not criticised the character or qualities of the respective stones mentioned, as we intend hereafter to make that a special subject. But the showing made, which includes about all there is of the kind in San Francisco, leaves them numerically so few, that our previous statement is entitled to excuse. The proportion is certainly small for a city numbering 250,000 inhabitants and enjoying an assessed value of property, real and personal, as follows: real estate and improvements, $155,834,879; personal property, $66,598,521; total, $222,433,400, with the further consideration, that, with the exception of business houses, San Francisco is a wooden city.

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The Longevity of the Ancients.

Can man reach and pass the age of a hundred years? is a question concerning which physiologists have different opinions. Buffon was the first one in France to raise the question of the extreme limit of human life. In his opinion, man, becoming adult at sixteen, ought to live to six times that age, or to ninety-six years. Having been called upon to account for the phenomenal ages attributed by the Bible to the patriarchs, he risked the following as an explanation: "Before the flood, the earth was less solid, less compact than it is now. The law of gravitation had acted for only a little time; the productions of the globe had less consistency, and the body of man, being more supple, was more susceptible of extension. Being able to grow for a longer time, it should, in consequence, live for a longer time than now."

The German Heusler has suggested on the same point, that the ancients did not divide time as we do. Previous to the age of Abraham, the year, among some people of the East, was only three months, or a season; so that they had a year of spring, one of summer, one of fall, and one of winter. The year was extended so as to consist of eight months after Abraham, and of twelve months after Joseph. Voltaire rejected the longevity assigned to the patriarchs of the Bible, but accepted without question the stories of the great ages attained by some men in India, where, he says, "it is not rare to see old men of one hundred and twenty years." The eminent French physiologist, Flourens, fixing the complete development of man at twenty years, teaches that he should live five times as long as it takes him to become an adult. According to this author, the moment of a completed development may be recognized by the fact of the junction of the bones with their apophyses. This junction takes place in horses at five years, and the horse does not live beyond twenty-five years; with the ox, at four years, and it does not live over twenty years; with the cat, at eighteen months, and that animal rarely lives over ten years. With man, it is effected at twenty years, and he only exceptionally lives beyond one hundred years. The same physiologist admits, however, that human life may be exceptionally prolonged under certain conditions of comfort, sobriety, freedom from care, regularity of habits, and observance of the rules of hygiene, and he terminates his interesting study of the last point ("De la Longévité Humaine") with the aphorism, "Man kills himself rather than dies."—*M. De Solaville, Popular Science Monthly.*

Girls as Engravers.

A wood-engraver gives the following reasons for not employing females: "I have employed women very often, and I wish I could feel more encouraged. But the truth is, that when a young man comes to me and begins his work he feels that it is life's business. He is to cut his fortune out of the little blocks before him. Wife, family, home, happiness, and all are to be carved out by his own hand, and he settles steadily and earnestly to his labor, determined to master it, and with every incitement spurring him on. He cannot marry until he knows his trade. It is exactly the other way with the girl. She may be as poor as the boy, and as wholly dependent upon herself for a living, but she feels that she will probably marry by and by, and then she must give up wood-engraving. So she goes on listlessly; she has no ambition to excel; she does not feel that all her happiness depends on it. She will marry, and then her husband's wages will support her. She may not say so, but she thinks so, and it spoils her work. —*Paper World.*

Health Officers' Report—Bad Condition of Sewers.

In recent reports by Dr. Meares, Health Officer, reference is made to the fearfully bad condition of the sewers of San Francisco, particular those south of Market street. The Doctor, however, simply reiterates what has heretofore appeared in the various issues of this journal, during the past and present year. We have repeatedly referred to the matter, and gave figures in connection with "*The Established Grades of San Francisco*," which exposed all the source of facts stated by the Doctor, or that can be stated, as the real cause of the trouble. It is a well-understood fact that water will not *flow* through a level channel with any washing force; it will of course discharge itself at any outlet that may exist lower than the inlet, but the sluggishness of its motion permits the heavier matter to settle and lodge in the passage-way, and there remain, only to be carried off when decomposed and resolved into a semi-liquid state. Consequently, when sewers have no fall whatever, they become the reservoirs of filth in an increased degree, and it requires no philosophizing to demonstrate their superlatively injurious character.

The figures heretofore given in this journal—February, 1880, p. 7—show that, taking Sixth street as a rule, 2,400 feet of the lower end of the street sewer are "dead level." The entire sewerage of the southern section of the city is comparatively in the same condition. And along the "eastern city front" the "base grade" extends 1,000 feet in from the water front. With these facts in view, how can it be otherwise than that the sewers in those sections should be repeatedly choked, and become reservoirs of infectious gases Nor will it ever be otherwise, so long as the sewers remain at their present grades.

"Health Officers" may continue to report the fearful condition of sewers in certain localities, but so long as those underground conduits remain at a level—with not a particle of descent or grade—so long will they contain unusual quantities of decomposing and poisonous matter.

An ordinance was passed in 1861, or thereabouts, by the Board of Aldermen or City Council, raising Folsom street about seven feet, which would have provided a superb fall for the sewers in that section, and relieved the conditions which have since sent hundreds, if not thousands, to premature graves; but some of the far-seeing (?) property owners, to save themselves the comparatively trifling expense which would have been involved by the then proposed change of grade, preferred to do what they did—secured the "killing of the ordinance"—which has proven a ruinous piece of manipulation to all property in that section of the city. The penny-wise-and-pound-foolish doctrine has never been more fully illustrated; for at that time sand-hills were plenty, but few buildings had then been erected, and the cost would have been light; while the injury inflicted by the vacation of the ordinance counts up into the millions. Property to day is not worth much more than one-half of what it would have been in that section had the grade been raised as stated. It is now rated as "low, flat, and damp," and not choice property; while, had a right and proper grade been established, it would unquestionably have become a favored portion of San Francisco, possessing, as it does, splendid advantages in many respects.

To do at the present time that which should have been done twenty years ago—raise the grade with a uniform fall from Mission street to the outlets of the sewers—will involve ten times the cost under present circumstances. But still it is the only thoroughly effective remedy for the difficulty, and should be done, however great the cost; and taking into consideration the increased value that would accrue to the property affected by such a course, and the thousands of lives that would be preserved within the next ten years, the outlay would be many times compensated. Continual crying out against evils that exist never furnishes a remedy. It is alone in the removal of the cause that the remedy can be found.

Departures from Old Styles.

The desire among owners of real estate for something new in architecture seems to prevail in all sections of the United States. The demand upon architects for new ideas and conceptions in house planning and construction, not only among the better-to-do and wealthy classes, but people of limited means want "something differing from the old styles." If no better than a small cottage is contemplated, it is expected that some new idea will be introduced. Hence it often occurs that features by no means in harmony with the general character of buildings are introduced, for the purpose of satisfying this common desire among owners for departures from former styles. But the "odd-looking things," if such is produced, frequently operate to the disadvantage and discredit of the architect; for if the general effect and result, or the details are bad, the blame is placed upon the architect; and if good, there will generally be some one to claim a division of credit, if not all the honors, for having "suggested," "advised," etc.

The fact that certain peculiar features may have been introduced and urged by positive orders from the owner, never appears nor intervenes to protect the man of plans. He must shoulder all responsibilities, and submit without redress to adverse criticisms and comment, because he cannot gain the ear of the many who criticise, and there are none to plead his defense. This fact points to a defect on the part of many architects in the conduct of their profession—a willingness to comply with almost every possible suggestion made, for the purpose of avoiding a seeming opposition to client's wishes. This is a great mistake; for while the party applied to, to prepare the plans for a building, enjoys no arbitrary rights in the premises, he certainly can claim the exercise of his own discretion in many ways; and if necessary, rather than be the party originating a design and plans calculated to provoke non-appreciation and ridicule, he can decline the proffered engagement; and those who prefer to accept any business opportunity, with all the consequences involved, can have no one but themselves to blame, should they permit or be parties to the introduction of some disreputable thing.

The Treatment of Burns.

The London *Medical Record* says, that Dr. J. Troizki adds his testimony to that already published as to the value of solution of bicarbonate of soda as a dressing for burns. He says, that during the previous year, he noticed twenty-five cases of burns, mostly of a severe nature. Sixteen of them were received at a fire in a village, during a strong wind, when the inhabitants, in order to save their property, were obliged to work in the flames. In all these twenty-five cases, bicarbonate of soda was exclusively applied. The result of this treatment was so favorable, that the author considers himself justified in pronouncing this remedy the best and most efficient in burns of all kinds and degrees. Even in extensive burns of the second and third degrees, the pain was soon alleviated by the application of compresses soaked in a solution of bicarbonate of soda; and the wounds soon healed, leaving but few scars and no impairment of the functions of the affected parts. No evil results from this extensive application of bicarbonate of soda, which might suggest the reception of carbonic acid into the blood, were noticed. Of the ten cases of which a detailed account is given by the author, one rather serious case may be related, in which the burns had spread over half the body. The whole face was stripped of epidermis, the hair was singed off, and the front of the neck, chest, and abdomen, and the dorsum of the foot, presented burns in the second degree; burns of the third degree were also found on the right mammary gland and on the right forearm, all the muscles of which were exposed, as if prepared by dissection. A solution of the bicarbonate of soda was applied to these burns, with a most conspicuous success; the patient felt relieved, and a cure was effected in four weeks; but the healing of the burns on the right breast and on the forearm lasted two months. The scars which were left were insignificant, and the mobility of the fingers was nearly normal. As regards the application of bicarbonate of soda in burns, the author distinguishes three methods: 1. Powdered bicarbonate of soda is strewn over the burned parts. 2. Linen rags, sprinkled with a solution of bicarbonate of soda (1 in 50) are laid on; as soon as these rags become dry, they are replaced by others, or are moistened again in the solution. 3. Linen rags are applied in the same manner, but are kept constantly upon the burns, and moistened by pouring the solution over them. The first method suffices only for burns of the first degree. Change of the moistened rags is chiefly adapted for burns of the third degree, attended with much suppuration. In exchanging the dry rags, the pus which has accumulated underneath them must be carefully washed off, that it may not be received into the blood; and then a fresh rag soaked with the solution must be placed upon the clean granulating surface. The third method is applied solely in burns of the second degree. Changing the compresses would in these cases only irritate the exposed surface, and, by causing a more copious suppuration, delay the healing process. The beneficent effect upon burns of the solution of bicarbonate of soda the author considers due to the anæsthetic, antiseptic, and disinfecting property which the bicarbonate owes to the ready disengagement of carbonic acid from it. Herr Troizki has also made experiments with other antiseptic and disinfectant agents, but has come to the conclusion none are so useful as the soda.—*Druggists' Circular.*

Don't Stop.

Do your work at once. Don't stop to dawdle. And if ever you find yourself where you have so many things pressing upon you that you hardly know how to begin, let me tell you secret: take hold of the first one that comes to hand, and you will find the rest all fall into file and follow after like a company of well-drilled soldiers; and though work may be hard to meet when it charges in a squad, it is easily vanquished if you can bring it into line. You have often seen the anecdote of the man who was asked how he managed to accomplish so much in his life. My father taught me, was the reply, when I had anything to do to go and do it. There is the secret—the magic word NOW.—*Southern Manufacturer and Builder.*

TO PREVENT GLUE FROM CRACKING.—The cracking of glue, which frequently occurs when glued objects become very dry, or are subjected to the heat of a stove, it is said may be prevented by the addition of chloride of calcium to the glue, which prevents its drying so completely as to become brittle. Glue thus treated will adhere to glass, metals, etc., and can be employed for affixing labels to bottles.—*Leffel Mechanical News.*

Diphtheria Facts.

Good Health for November contains a lengthy article in reference to the "serious nature of the disease (Diphtheria), its contagious character, and its alarming prevalence in this State (Michigan) at the present time." The State Board of Health, after careful and thorough consideration of the matter, have published a document setting forth:

1st. That when a child or young person has a sore throat, bad odor to its breath, and especially if accompanied with fever, should immediately be separated from all other persons. 2nd. Any person known to be sick with diphtheria, should be promptly and effectually isolated. 3d, 4th, 5th, refers to proper notification of the health officers. 6th. The room occupied by diphtheria patients should be cleared of carpets, drapery, and all but necessary articles, to avoid poisonous infection. Fresh air and sunlight are essentials. 7th. The discharges from the throat, nose, and mouth are extremely liable to communicate the disease, and should be received in vessels containing a strong solution of sulphate of iron (copperas), or on soft cloths, which should be immediately burned. 8th. The urinations and bowel discharges are also dangerous, and should be passed in vessels containing the above solution, and be disposed of by burial in the ground, at long distance from all possible contact, or on cloths which should be immediately burned.

"Sulphate of iron (copperas) dissolved in water, in proportion of one and one-half pounds of the sulphate to one gallon of water, is a good solution for chamber-vessels, or water-closets, etc. When much is required, it may be prepared by hanging a basket containing sixty pounds of copperas in a barrel of water."

9th. The clothing, towels, bed-linen, etc., on removal from the patient, should at once, before removal from the room, be placed in a pail or tub of boiling hot zinc solution—one gallon water, sulphate of zinc four ounces, common salt two ounces. 10th. Attendants should keep themselves and patients as clean as possible, frequently washing their hands and using disinfectants. 11th. There is danger from contact with convalescents, until, beyond all question, every vestige of the disease disappears. Numerous other precautions follow in reference to disinfectants, destruction of clothing, etc. "Do not kiss or take the breath of any person with sore throat. Do not drink from the same cup, blow the same whistle, *or put his pencil or pen into your mouth.*" (The precaution in italics should not be needed. It is an absurd and foolish practice. The result of a bad habit which parents and school teachers should manage to correct.—ED.)

How to Treat Plumbers.

The sanitary importance of good plumbing cannot be overestimated. The relation of poor plumbing and sickness in the household is much closer than people generally suppose. Nowhere does cause more rapidly follow effect than here. Of course every one who builds a house undertakes to provide for the right kind of plumbing; but between the carelessness of the builder, and the ignorance—or what is worse, the dishonesty—of the plumber, half out houses are nothing but receptacles for the most deadly poisons, often becoming germinating places for pestilential diseases. Accounts of inspections of houses in different parts of this city, which have recently been published in our daily press, show a large number of residences where the plumbing is of the worst possible description. No wonder that in such houses the occupants are afflicted with diphtheria, scarlet and typhoid fevers, rheumatism, and a variety of blood poisons. A movement is being inaugurated in England which is in the right direction, and which it would be well for us to follow in this country. Mr. S. Stevens Helyer, a writer and lecturer on scientific subjects, has been invited by the National Health Society of London, to deliver in the hall of the Society of Arts, in that city, a series of practical lectures on sanitary plumbing, for the benefit of working plumbers. It is proposed to instruct them in the technicalities of the art. The lectures are to be free, and prizes and certificates will be given to those who pass a satisfactory examination in the subjects under discussion.

Such lectures would have the tendency to educate the plumbers in their occupation, and would go a long way towards improving all plumbing work in the hands of those who would do good work if they knew how. As to the dishonest plumbers, they should be treated in an altogether different manner. Dishonest plumbing should be held as a crime and punished as such.

If we have no society with sufficient public interest to furnish such a course of lectures, it would not be a waste of money for the municipalities to furnish them. It might be possible that many plumbers would refuse to take the time to attend the lectures, on the ignorant supposition that they already had learned their trade; but when it should come to pass that builders preferred employing only such plumbers as have received a certificate of examination, they would soon interest themselves to attend.

If, as the experts tell us, a very large share of all the plumbing done is defective, then plumbers can only plead in excuse their ignorance or dishonesty. If they are ignorant, surely they should be glad to be instructed; and if they are dishonest, the law should take them in hand and punish them in accordance with their deserts. We certainly hope that the English plan of public free lectnres to the plumbers will be tried.—*Industrial World.*

The Panama Canal.—Work Done.

The President of the American Branch of the (De Lesseps) Panama Canal Company has issued a statement of the condition of the work. Notwithstanding the obstacles encountered in the luxuriant vegetation and the thick forests, there has been opened and recorded transversely to the axis of the canal over 200 kilometers of paths, and also a passage from 20 to 30 meters has been made from one end of the Isthmus to the other, according to the proposed lines of the Canal Commission. For meteorological studies, to which especial attention has been given, four stations have been established—at Colon, Gamboa, La Boca del Rio Grande, and Naos Island. Geological surveys have been made and are now in progress. It has been ascertained that between Colon and Lion Hill the canal will not encounter any rocks. At the present time two steam sounding apparatus are being put up similar to those at Colon. At this station the samples brought up by the spoons have given an exact structure of the soil. It is shown to be a succession of layers of clay, representing the degradations of a greenish pyroxenic rock, which through its gradual degradations and decomposition has produced this formation. At other places the ground, bored to a depth of 25 meters, has revealed nearly every way, instead of successive formations methodically arranged, a chain of derived rocks growing softer and softer. The thickness of the mellow soil is quite remarkable, and, in a word, the soundings have given results beyond expectation on the whole line of the canal.

Work on the canal has been commenced. The company now have 200 cars, 12 locomotives, 2 pontoons, 2 steam cranes, 18 flatboats, 2 dredges with change pieces, ribbon-saws, rails, etc., a part of which is already at Colon and the remainder is on the way. The storehouses at Colon cover an area of 1,400 meters, and are full. Five barges and two steamboats are plying upon the Chagres River. Another steamboat at Panama is used for hydrographic surveys of the bay.—*Scientific American.*

Advice To Learners.

Do not seek to learn too rapidly, nor affect to comprehend great facts and principles in haste. Remember that substantial and perfected knowledge can only be attained by careful and diligent application, submissive willingness to accept the teachings of those who have acquired right understandings through earnest devotion and practice, and resolute determination to reach the higher spheres by untiring efforts to perfect the foundation work. Never seek to ascend a single step in life's work, until, beyond all peradventure, that which is below it is complete, or rightly understood in every part.

Haste has brought ruin to tens of thousands of young men. Restive under the restraints imposed by tuition; impatient at the delays required in perfecting the details of a thorough mechanical or business education; ambitious over-reachings to attain that which should be patiently waited for, until, by persistent and persevering industry, they should be gathered as well-earned trophies—have caused multitudes to miss the mark they might have made, and pass through life at a level far below what might have been reached with a more prudent and wise beginning.

Testing Drain Pipes.

A writer in the *Ironmonger*, from long practical experience in testing drain pipes, confidently recommends for that purpose, what he terms a "smoking test," and which gives evidence as to leaks both to sight and smell. The materials that he emoloys are soiled cotton waste and sulphur, the smoke from which, after ignition, is blown into the drain or pipes. If leakages exist in the latter inside of the house, the smoke and smell both issue forth and show that something is wrong, and generally tell also just where the fault or faults are. Sulphur, as well known, is one of the best disinfectants, and a dose of the fumes from this to the drains, after disease has been in a house, would effect much good.—*Ill. Scientific News.*

Market Reports.

LUMBER.—The demand for lumber has been very large for the past month. Some dealers are short in several kinds. It will be noticed that there has been a rise of $1 00 per thousand "all around." Stocks on hand are very low, and if the present demand keeps up, "the *twelve-hour system* might get a set back.

Receipts since January 1st:

Lumber	163,608,333
Shingles	50,975,410
Laths	16,348,100

A correct price list of lumber will be found below:

Pine.

Common Rough, up to 40 feet, per M feet			$22 00
"	41 to 50	" "	23 00
"	51 to 60	" "	24 00
"	61 to 70	" "	26 00
"	71 to 80	" "	28 00
Refuse Rough		"	18 00
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over,		"	29 00
"	4 " and under, and 1¼x4 and 1¼x6		
Flooring and Stepping			31 00
Rough Clear for Flooring, $1.00 less than above rates.			
Second quality Flooring add stepping,		per M feet	23 50
Ship Plank, Rough		"	27 00
"	Planed 1 side	"	31 00
"	" 2 sides	"	32 00
Deck Plank, Rough		"	32 00
"	Dressed	"	36 00
Laths		per M	3 50
Wool Slats		"	11 00
Shakes		"	9 00
Redwood Posts		per piece	11

Redwood.

Rough Merchantable		per M feet	22 00
"	Refuse	"	18 00
Surface No. 1		"	33 50
"	1 x 6	"	31 00
"	No. 2	"	26 00

Rustic, No. 1, 1 x 8	per M feet	$31 00
" No. 1, 1 x 10	"	33 50
" No. 2	"	28 50
" Under 10 feet	"	33 50
T. & G., 1¼ x 4 and 1¼ x 6	"	31 00
" 6 in. 12 ft. and over	"	29 00
" " 7 to 11 feet	"	26 00
" " under 7 feet	"	26 00
" " No. 2	"	33 50
T. & G., Beaded, 12 feet and over	"	29 00
" " 7 to 11 feet	"	26 00
" " under 7 feet	"	28 50
Half-inch Surface	"	25 00
Pickets, Fancy	"	14 00
" Rough, Pointed	"	15 00
" " Square	"	22 50
Siding, ½ inch	per M	2 25
Shingles	"	¾c
Battens, ¾ inch, lineal feet	"	¾c

NAILS.—Since January we have imported 180,891 kegs. Dealers are generally well supplied. Prices are very firm.

10 to 60 pennies, are quoted at	$4 00
8 " "	4 25
6 " "	4 50
5 and 4 " "	5 00
4 and 5 pennies, brad heads, at	5 25
6 " "	5 50
8 " "	5 75
10 and upward " "	5 00
3 penny fines " "	7 50

PAINTS.—There is a fair demand for the fall trade. The PIONEER is the only brand quoted, as its excellent qualities, and the fact that it is strictly a home production, has about driven all other brands out of market.

We quote Pioneer White Lead 8½ cts. per lb.

Building Intelligence.

For the first time for several years, mechanics can look forward to the holidays with a glad and happy feeling, knowing they have the wherewithal to purchase presents for the dear ones at home, and that a prosperous season is before them. Our prediction in our last, that wages would go higher, is being verified. It is a mechanic's own fault if he is not busy. From all quarters of the State, we have gratifying assurances that building improvements are being contemplated. We refer to the list below for particulars.

SAN FRANCISCO.

Two-story and basement frame dwelling on Chattanooga street, between 24th and 25th. Owner, W. G. Buchanan; architects, Wolfe & Son; contractor for carpenter work, P. J. Hurlburt; cost, about $5,500.

Two-story frame building for store and residence, on corner 5th and Natoma. Owner, N. P. Perrine; architects, Wolfe & Son; contractor, J. T. Whitney; cost, $3,500.

Two-story building on Mission, near Fremont. Owners, Bigelow & Morris; architects, Wolfe & Son; contractor, R. McCann; cost, ——

Old buildings north-east corner Pine and Sansomé are being removed, to make place for a four-story and basement brick building. Owner, Anglo-California Bank; architects, Kenitzer & Raun; contractors, Mahoney Bros.; cost, about $75,000.

Four-story and basement brick building on Beale street, near Market. Owners, M. C. Hawley & Co.; architects, Wright & Sanders; carpenter contractors, Terrill & Slaven; brickwork, W. E. Stevens; cost, ——

Spear street, between Howard and Mission. Rebuilding and additions to lumber yard. Owner, A. A. Wigmore; contractor, R. Brotherton; cost, $1,800.

Two-story brick building on Pine street, between Kearney and Dupont. Owner, Robinson; contractors, McCann & Hughes.

Four one-story cottages on Baker street, between California and Sacramento. Owner, H. Hinkle; day's work; cost, about $1,900 each.

Two-story frame with basement, on California street, between Gough and Octavia. Owner, Chas. L. Hinkle; day's work; cost, about $8,000.

Additions to Western Addition Music Hall, on California street, west of Fillmore. Owner, D. Short; contractor, Gibson.

Alterations to building corner Post and Leavenworth. Owner, J. G. Eastland; architects, Curlett & Eisen; day's work.

Mechanics' Pavilion is being removed to block bounded by Hayes and Grove, Polk and Larkin. Architects, Curlett & Eisen; contractors, Moore Bros. Cost cannot be fully given, as the contractor has the privilege of using lumber, etc., in old building, and the cost of such material does not enter into the amount of contract.

One-story cottage on Sacramento street, between Pierce and Scott. Owner, Geo. Brooke; architects, Curlett & Eisen; contractor, D. Perry; cost, $2,000.

Three-story frame building on Broadway, between Powell and Stockton. Owner, Jos. Sartov; architects, Curlett & Eisen; contractor, G. Rocco; cost, $2,800.

One-story and basement frame cottage on Sacramento street, between Baker and Broderick. Owner, Ed. Hill; architects, Curlett & Eisen; contractor, A. Flood; cost, $2,000.

One-story frame cottage on Sacramento street, between Baker and Broderick. Owner, A. Wenzelberger; architects, Curlett & Eisen; contractor, A. Flood; cost, $2,000.

Two-story frame dwelling with basement, on corner 24th and Guerrero. Owner and builder, White.

Two two-story frame dwellings on Guerrero street, near 24th. Owner and builder, Edwards; cost, about $2,600 each.

Additions to building corner San José avenue and 23rd street.

Additions to building 1605 Post street. Owner, Samuels; contractor, F. Klatt; cost, ——

Dwelling on Laguna street, between O'Farrell and Geary. Owner, Hogan; contractor, P. Laherty; architect, T. J. Welsh; cost, $2,400.

One-story and basement brick building on Pine street, between Sansome and Battery. Owners, Carroll & Gamper; architect, T. J. Welsh; contractor, T. H. Day; cost, $6,400.

Repairs to building on Stevenson, between 18th and 19th. Owner, I. Lynch; architect, T. J. Welsh; contractor, Smith.

Two two-story frame buildings on Ridley street, between Valencia and Market. Owner, F. Lampe; architect, P. R. Schmidt; contractor, F. Klatt; cost, $6,600.

Two-story frame dwelling on Steiner street, near Haight. Owner, A. W. Stott; architect, J. Marquis; contractors, Moore Bros.; cost, $3,500.

One-story frame building for warehouse, on Spear street, near Market. Owner, M. J. O'Connor; architect, P. Huerne; brick contractor, O. E. Brady; carpenter work, F. Buckley; cost, about $6,500.

Three two-story frame dwellings on corner 21st and Jessie. Owner, J. Garrick; day's work; cost, about $6,000.

Two-story frame dwelling on Lapidge street, between 18th and 19th. Owner, Lintall; cost, about $2,000.

One-story frame on corner of Valencia and 19th.

Two two-story frame dwellings on Stevenson street, below 18th. Owner, McDermott; contractor, J. Tressler; architects, Hoffman & Curtis; cost, $2,500.

Two-story and basement frame dwelling on Howard street, between 12th and 13th. Owner, Capt. C. L. Foye; architect, W. F. Schmidt; contractor, Wm. Plunk; cost, $3,200.

Four-story brick building corner of Main and Market. Owner, W. E. Dean; architect, D. Farquharson; contractor, Ed. Farrell; cost, ——

Two-story and basement frame dwelling on south side of Pine, between Larkin and Polk. Owner, R. J. Techau; architects, McDougall & Son; contractor, J. O'Brien; cost, $4,000.

Three-story frame dwelling with brick basement on south-east corner of 3rd and Howard. Owners, Hemming & Koster; architect, H. Geilfuss; carpenter work, F. Klatt; brickwork, McCarthy; cost, $25,000.

Two-story frame building on Mission street, between 15th and 16th. Owner, McCarthy; architect, W. Schrof; contractor, R. Doyle; cost, $2,725.

Two-story and basement frame dwelling on Broadway, between Leavenworth and Jones. Owner, Keenan; contractor, H. Inwood; cost, $2,300.

Jewish Bath House on Tehama street, between 5th and 6th. Owner, Brodsynski; contractor, J. Martin; cost, $2,500.

Frame building for restaurant in Golden Gate Park, west of the conservatory. Built by A. P. Damon, under arrangements with the Park Commissioners. Architect, J. A. Remer; contractors, McCann & Jeffries; cost, $12,000.

Two-story frame building, with brick additions, on Howard street, between 15th and 16th. Owner, Wagner Bros; architect, H. Geilfuss; contractor, B. Dreyer; cost, $4,100.

Two two-story frame dwellings on Buchanan street, near Tyler. Owner, H. Levinson; architect, W. H. Bayless; contractor, Jos. Dutton; cost, $5,000.

Two-story addition to Industrial Iron Works on Beale street, between Howard and Folsom. Day's work.

One-story frame building on corner of 8th and Mission. Owner, D. J. Oliver; architect, T. J. Welsh; contractor, J. Benet; cost, ——

Shed on corner Howard and Main streets. Contractor, J. H. Fiege; cost, $1,500.

Dwelling on California street, between Buchanan and Webster. Owner, F. Wittram; contractor, Jackson.

Dwelling on corner 21st and Church. Contractor, F. C. Klebauer; cost, $3,000.

ALAMEDA.

Two-story and basement frame dwelling on Central avenue and Willow streets. Owner, Dr. J. I. McLean; architects, Babson & Seadler; contractors, Haskell & Smilie; cost, $5,000.

One-story frame on Santa Clara, between Willow and Walnut streets. Owner, A. W. Snow; builders. Gilbert & Brown; cost, $3,500.

Two-story frame residence on Union street. Owner, A. Hackmeir; contractor, H. Rappel.

One-story cottage on San Antonio avenue, near Oak street. Owner, A. M. Sheriff; builder, J. W. Bones; cost, $1,350.

SANTA CLARA

One-story brick building, corner Franklin and Washington streets. Owner, H. C. Frank; architect, Theo. Lenzen; contractor, W. S. Boyles; cost, $2,200.

SAN JOSE.

One-story brick building on Santa Clara street, between 1st and Market. Owner, J. Balbach; architect, Theo. Lenzen; contractor, G. E. McDoughall; cost, $1,600.

Two-story frame dwelling on 2nd street. Owner, J. J. Burt; architect, J. O. McKee; contractor, W. S. Boyles; cost, $3,000.

RED BLUFF.

Two-story frame building on High street, for school-house. Owners, Sisters Catholic Convent; architect, B. J. Clinch; contractor, H. Hansen; cost, $4,500.

Additions to store on Main street. Owner, S. Alward; contractor, H. Hansen; cost, $1,000.

Two-story frame dwelling on Washington street. Owner, W. Fickert; day's work; cost, $3,000.

Odd Fellows' Hall is being extended 14 feet; contractor, A. S. Cramer.

Two-story dwelling with brick foundation. Owner, J. C. Hunt; contractor, Chris Heider.

TEHAMA.

Two-story frame building. Owner, John Simpson; architect, A. J. Bryan; cost, $2,650.

One-story frame building. Owner, Chris Heider; architect, A. J. Bryan; cost, 1,225.

BENICIA.

Two-story frame dwelling on corner of 1st and D streets. Builder, Wm. Bennett.

One-story cottage on L street, near East 6th. Owner, Burke; builder, J. Neal.

One-story cottage adjoining above. Owner, Wm. Starr; builder, Jos. Neal.

One-story building for store. Owner, M. J. Smith; contractors, Lyons & Hunter.

Two cottages on L street. Owner, S. M. Wilson; builder, P. P. Gerrish.

One-story cottage on H street. Owner and builder, J. R. Muldowney.

MISCELLANEOUS.

ST HELENA.—One-story cottage. Owner, H. Risley; contractor, W. T. Simmons.

BERKELEY.—Two-story frame dwelling. Contractor, B. C. Allyn; cost, $2,500. Two-story frame on University avenue. Owner, Anderson; contractor, R. A. Boyington; cost, $1,400.

SAN RAFAEL.—Two-story frame dwelling corner of Nye and Mission street. Owner, Grove Adams; contractor, W. M. Fletcher; architect, W. F. Smith; cost, $5,000.

OAKLAND.—One-story brick building for tin shop on 13th street, near Broadway. Owner, W. W. Montague; contractors, Remillard Bros.; cost, about $1,000.

ASTORIA.—Five new canneries are in process of erection at or near this place.

PIEDMONT.—One and one-half-story frame dwelling. Owner, H. Craig; architects, S. & J. C. Newsom; day's work; cost, about $5,000.

PETALUMA.—One-story cottage on corner C and 5th streets. Owner, G. W. Eichman. One-story cottage on Main street. Owner, M. Joyce.

Publication Notices.

We have received a copy of *Sewer Gas and its Dangers*, by George Preston Brown, published by Jansen, McClurg & Co., Chicago. It is not simply a scientific treatise on the subject of sewer gas, but a practical investigation by an "impartial inquirer" as to what extent sewer gas is responsible for the sickness and discomforts of city life. The astonishing prevalence of sewer gas poisoning, and consequent illness and death in all cities, and among all classes, is clearly set forth. The facts are presented in a plain and comprehensive manner. If there is any doubt that sewer gas is a dangerous enemy to health and happiness in families, it must be dispelled by the stern facts presented in this book. Copies can be had through the office of this journal. Price, $1.25.

The Steel Square and its Uses.—We have received another large invoice of this valuable little work. No mechanic should be without it. Price, 75 cents.

Palliser, Palliser & Co.'s Useful Details.—Since their introduction in our catalogue of useful publications, the sales have been large. We have a full supply on hand. Sold at publisher's price, $3.00 each set, 20x26 inches, with 40 pages of detail drawings.

A supply of all books mentioned in our catalogue constantly on hand.

Cameron's Plasterers' Manual.—While all its suggestions may not harmonize with our California practice, it is "an invaluable book of reference, containing many useful instructions which cannot be retained in the memory; such as tables, dimensions, capacity of cisterns, weights, measures, etc. Price, 75 cents.

The Art of Saw-Filing, by H. W. Holly. A really valuable treatise on the subject named. Every carpenter should secure a copy. But few mechanics know how to file saws properly, and those who perchance may be proficient can give no special rule for the result. Thousands of dollars are wasted every day by saws not being properly filed and set, and whole volumns of oaths are repeated, caused by the vexations attending irregular and ill-shaped saw teeth. Correct saw-filing is an essential to good work and the workman's comfort. Price, 75 cents.

The Carpenters' Manual, by John D. Edwards. A very useful little book, containing a large range of practical ideas in connection with mechanical studies. Carpenters and builders will find it of much more value than its cost—50 cents.

Modern Architectural Designs and Details, published by William F. Comstock, successor to Bicknell & Comstock, in 10 parts, makes—bound—a very handsome and valuable book of designs for houses, and plates of details, useful alike to architects and builders. The "parts," or numbers, separately, can be had at this office, at publisher's price, of $1 each, or the ten "parts" neatly bound for $10. All other books on architecture, steel square, and all other subjects, can be had through this office at publisher's rates. Orders from all sections of this western coast, and places bordering upon the waters of the Pacific Ocean, filled with promptness.

We have received Vol. I. of "*Palliser Useful Details*," published by Palliser, Palliser & Co., Bridgport, Conn. It consists of over forty pages—20x26 inches—each page being filled exclusively with details in original design, showing about every conceivable thing in connection with house construction and finishing. The publication price of $3 per volume is certainly very low for a publication containing so large an amount of practical information and instruction. It cannot be otherwise than useful to all practical architects, and especially so to students of architecture, and builders who undertake the construction of buildings for which plans and details are not furnished by architects. Orders for same received at this office, and copies sent to any address as soon as a supply can be had from the East.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost every thing in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

The California Architect and Building Review.

VOLUME II. NUMBER 12. | SAN FRANCISCO, DECEMBER, 1881. | $2.00 per Annum. in Advance. Single Copies, 20 Cents.

The California Architect
— AND —
BUILDING REVIEW.

PUBLISHED MONTHLY BY THE

SAN FRANCISCO ARCHITECTURAL PUBLISHING CO.

JAMES E. WOLFE, Editor and Manager,
240 MONTGOMERY STREET.

GEO. H. WOLFE, Business Manager,
Room 11, 240 Montgomery St.

Sent to any part of the U. S., postage paid, at $2.00 per annum, with extra cost of postage when sent to Foreign Countries.

Entered at the Post Office at San Francisco, Cal., as second-class matter.

ADVERTISING RATES.

On outside of front cover, and page following Building Intelligence, per square, each insertion	$1 50
Outside of back cover, and page next preceding reading matter, per square, each insertion	1 25
On other inside pages, per square, each insertion	1 00

With reasonable reductions for larger spaces, and advertisements continued for six or 12 months.

Our Closing Issue for 1881.

Satisfied with the past, we look forward with pleasing anticipations for the next ensuing year. Since the establishment of this journal in San Francisco, it must be admitted by all who understand the true conditions, past and present, that a very much better state of feelings exist among the architects of this city, while members of the profession in other places have been brought into closer intercourse and more friendly relationships. Emnities and jealousies, which in former years had estranged and antagonized members of the profession, have, in some degree at least, been modified, and harmonies vitalized and established, where coldness approaching personal disrespect formerly prevailed.

There is a lesson in this fact worthy of notice, illustrating how men of good purposes and equal claims, personally, to kindly recognition may run apart and become unfriendly, if not absolutely enemies. Men may educate and train themselves to love or hate each other, according to the control asserted over their wills and dispositions. Those who are so minded may find in all nature that which is beautiful and lovely, challenging the purest sentiments of the human heart, and in mankind, enough to enlist their sympathies and forbearance, if not to incite their admiration; while it is also possible for them, as many do, to build up around themselves the walls of selfishness so high and strong that the sunlight of kindness and generous impulses never enter; where the mildew, and cold chilliness of unappreciation of all around them, robs life of the few pleasures which might be enjoyed. It is therefore to us a source of indescribable pleasure, if to any extent this journal has had the influence of opening the brighter pages, and unfolding the truer light which now appears. And if life shall be spared, we hope that the past is but the beginning—the gentle showers which preceed the more copious down-pourings from the skies. And to this end we earnestly request that every present subscriber will promptly renew his subscription, and with it, induce others to add their names to our subscription list. It should be remembered that large outlays and expenditures are necessary in the publication of such a journal; and also that liberal patronage inspires greater zeal and effort, and stimulates energies in publishers. Therefore, to enable us to enlarge and improve upon the past, and make this journal the pride of the architectural profession and the better classes of mechanics upon the Pacific coast, we ask and invoke the earnest co-operation of our patrons to increase the facilities necessary to the greater purposes in view, by adding largely to the number of those, in all sections of the country, who have thus far sustained us by the ready payment of their yearly subscriptions.

In our next volume, 1882, we propose to present our readers with several series of articles upon special sebjects of great interest to the entire people of the Pacific coast in particular, and to our patrons in various parts of our own county, and those beyond great oceans whose waters wash the shores of the American continent.

There are numerous topics special to California which have never heretofore been given to the world but in part, and many erroneous impressions and understandings exist, because of such incomplete and imperfect representations. A story half-told is akin to falsehood in effect, as a partial relation of that which is in itself true may lead to false conclusions, and so establish an error. Our purpose will be to treat with fullness every subject taken in hand, so that when we shall have done with it, a right understanding of all the material facts, at least, shall be fully reached.

We should outline the special matters contemplated, but for prudential reasons prefer to reserve them to ourselves, knowing that among publishers of journals, as in all other matters, the standard of moral ethics is not so largely developed or mantained as to preclude or render disreputable in any *effectual sense*, the appropriation of anything that may be discovered, the taking of which is not legally criminal. Moral rectitude in business pursuits is not as broad as the firmament, nor as pure as the white mantle which covers the mountain tops in midwinter.

Review of the Closing Year—1881.

Twelve months ago we represented the state of things as they then appeared; and it is exceedingly pleasing to be able to state the present fact, that 1881 closes down upon a better state of affairs in San Francisco than has existed at the same period during either of the preceding five years. No exciting "boom" in building activities has marked the period named, but a steady, healthful improvement has rolled over this city and State, and we close the year with bright promises for 1882. We have deprecated the inflated statements which from time to time have appeared in our city daily journals, which, if they had been absolutely correct, would have made San Francisco and California one of the most flourishing and prosperous sections on earth. But we have found the more substantial satisfaction in a representation of facts just as they have existed; denying all the "boom" assertions, and saying no more than was actually true; that during the various periods of the closing year, a healthful, steady, and improved condition of things has prevailed, bringing us to the threshold of another, rich in prospects and cheering hopes. From a fair demand for labor and materials at the commencement, we end the year with no surplus of either, and increased demand and value for both, with a further advance almost certain for the future. *Competent* mechanical labor is scarce at the present time, and with the many improvements now in progress during the "midwinter" "rainy season" months, and the many others that will be commenced before the first month of the coming spring, argues not only that good workmen will be scarce, but that there will be a positive insufficiency to supply the demand. And as scarcity of materials in certain lines now exists, it is fair to presume that prices will be strengthened by continued and increased requirements.

There is a greater number of brick buildings under way at the present time, than has been at any one period during the past seven or eight years, and many more are contemplated; nearly all of which are and are to be of no mean pretensions, costing from lesser amounts up to $400,000 or more—for business purposes, not including the new, "largest sugar refinery in the world," which will approximate a million dollars in cost by the time it commences operations. Our monthly reports of *Building Intelligence* have given the very nearly true and correct facts in connection with building improvements, barring, first, that from personal motives, one or two parties have furnished us untruthful reports of buildings under their control, to create the impression that they were doing a great deal of work. But as these are few, the effect upon the general results is unimportant; and the fact that such parties are known to us, like deceptions will be avoided hereafter. And we here interpose the remark, that as all deceptive tricks are liable to detection and exposure, it will be the wiser course for all parties furnishing us information, to be particular in their statements and representations, as we shall most assuredly expose any attempt at deception, and if need be, mention names in so doing. We propose exclusive truthfulness in the conduct of this journal, and will not knowingly permit a misrepresentation in any case. Secondly, we have in some few cases found it difficult to obtain the correct facts. From motions of positive ugliness, parties who might have furnished the desired information have refused to do so. Some architects "don't want their business exposed," and some owners "prefer not to let the public know what they are doing." But in nearly all such case, we have ascertained the approximate facts, and the reticent parties have not succeeded in "keeping their business to themselves," however much such a course might have gratified their selfish natures. In such cases, concealment is impossible when the obtainment of facts are deemed necessary; and with our increasing facilities for gathering "building items," there will be but little gained by any one either seeking to mislead or suppress facts in reference to what is doing. And we hope, further, that before the approaching year shall end, the sentiments of owners and the few architects who are reluctant to impart information, will become convinced that no harm can accrue to any one by simple statements illustrating the progress that is being made in the improvement of real estate in this city, while such statements are and will be gratifying to the community, and with the widespread circulation of this journal, people in other places will be able to understand the correct state of facts in this con-

nection, in San Francisco and on the Pacific coast.

If there was a "building permit" system in San Francisco, similar to those established in other Eastern cities, the obtainment of building information would be an easier matter. But the "go ahead, "do as you please" rule governs operations on this coast, and each owner commences building when he pleases, except in certain localities in business centers, where permits to occupy portions of the street, etc., are required by city ordinance.

THE OUTLOOK IN CALIFORNIA is almost equal to the best that could be desired. General prosperity abounds. The "smash" which occurred in stock operations some two years or more ago, in addition to the sand-lot calamity, left those who had invested in them next to penniless. The masses were impoverished, business prostrated, and universal depression ruled. But since then, men have directed their attentions and energies toward legitimate pursuits, and recuperation and recovery from the disasters brought upon us by the "raking process" among stock manipulators, finds the people of the Golden State at the present time well to do, and financially strong and vigorous. Thousands who had been, through such losses and hard times, driven into rented rooms and small tenements, now feel that they can afford to live a little better, and have been of late and are seeking more commodious quarters. Branching out and extending is the present order of things, and but few are found upon the complaining list. All lines of business are active and profitable. One of the surest evidences of a substantial financial condition among all classes, is the fact that the hundreds of small and large "immense" retail dry goods houses are daily thronged with purchasers, and more yards of dress fabrics are being sold now than has been for many years within a similar given period. The same state of facts exists in all other departments of trade. The *ten-cent coffee-saloons*, "coffee and doughnuts or pie for ten cents," furnish another illustration. During the "dull times," thousands of business men lunched at these places, who, until then, had indulged in the luxuries furnished at "first-class restaurants." These are returning to their old habits of the more expensive luncheon, and the ten-cent establishments have fewer patrons. And so we find in all directions a greatly improved state of affairs, with all the tendencies upward and onward.

REAL ESTATE, both for business and residence purposes, is no longer at a stand-still. Choice property is in good demand at better prices than at any time during the past five years; and some property owners are becoming a little feverish, anticipating a return of "old prices for lots." This, however, is not to be desired. Real estate values in San Francisco have in former years reached too high a figure, more through the spirit of speculation than otherwise. The purchase of property upon the basis and for the express purposes of selling at an advance, without appreciation of actual value for improvement purposes, is not healthful. It forces and drives prices up to a standard beyond all reason, and to render them valuable as investments—if built upon—the rentals must be enormous, and the "high rent" system never works to the advantage of any city, as it compels higher prices and greater profits on goods sold, greater rental for family residences, and consequent increased cost of living—all of which are held in argument against cities wherein it costs all that those who are not most fortunately situated to live. About the first thing considered by parties contemplating a change of residence, is the cost and expense of living; and many turn away from places in which they would prefer to reside on account of "high cost of living." And as this city and State need population—immigration—more than excessive value in real estate, that which tends to the latter at the expense of the former can be considered in no other light than unwise policy. The old adage, that "fools build houses, and wise men live in them," is verified when men pay more for land than fair and reasonable rentals will justify. People sometimes pay fancy prices for residences, but they more frequently "go begging" when once unoccupied, particularly during unfavorable business conditions. Such prices can only be maintained in prosperous times; and these, together with the many other well-known facts, should influence moderation instead of inflation in the value of real estate. Reasonable prices for land, either in cities or country, invite immigration and investment, while high or excessive values simply stimulate the spirit of speculation, which itself must have a limit, and more generally is followed by ruinous reactions, leaving the *last man* stranded upon the barren, unwashed shore—at least during the receding tide, if not forever.

Summary of Building Improvements in San Francisco for 1881.

The monthly reports of "Building Intelligence" appearing in this journal for the year 1881, have been so nearly correct and complete, that they may safely be accepted as representing the approximately correct state of facts for the year.

The greatest difficulities encountered in making up our reports, have not only been the unwillingness of owners and a few architects to communicate facts and figures, but in some cases a disposition has been manifest to mislead, by exaggerations or suppressions. And as we have elsewhere stated, there being no "building permit" system established by ordinance in this city, the work of gathering in this class of information has been surrounded with more or less difficulty and uncertainty; but at the same time we are confident that we have missed but little, and that our totals will average very nearly correct. In some cases the cost of buildings has been omitted for four reasons; first, it is difficult to determine at the commencement what the cost of "day's work" operations will be; sometimes they are very elastic, and spread out far beyond all first calculations and estimates. Secondly, in some cases statements of cost are refused, although the other facts may be furnished. Third, the several branches are frequently "let separately," and but seldom that they are all awarded at the same time. In many cases, the letting of each branch is delayed until the progress of construction demands the letting; so that the final cost is sometimes not ascertainable until the work of erection is very far advanced. And fourthly, for special reasons on the part of the interested parties, the statement of cost is by request withheld.

This summary includes all buildings reported in this journal from December 10th, 1880, to December 10th, 1881 inclusive, and shows the following:

Of alteration and repairing jobs	99
(This number, however, does not include *all* of this class, as we have reported only the more prominent cases, leaving the many of smaller importance to take care of themselves.)	
Of brick buildings	27
Of residence buildings	407
Total reported erections during the year	533

The total approximate cost of all these, according to the amount of cost reported, has been $3,382,482, to which add $408,250 as the *approximate* cost of 43 cases, in which no sum of cost was named, the total for the year will be $3,790,732.

These figures may not be strictly accurate, for the reason that the approximate figures may not be correct; and the further reason that in numerous cases the buildings have been erected under disjointed contracts, separate to the respective branches, and more or less by "day's work," so that reliable information has been impossible, until final completion and the footing up of expenditure accounts. And it often occurs that even when *all* contracts are supposed to be let, and the totals assumed, incidentals, changes, etc., swell the amount from 5 to 25 per cent. above the first estimated figures. Upon this basis, it might be safe to add a percentage to the totals mentioned, for the purpose of showing more correctly the amount of money which has changed hands during the year, in connection with the building and real estate improvement interests of San Francisco for the year.

We have placed the San Francisco Sugar Refinery improvement at $500,000. Whatever amount more or less than this may be the proper figure, the difference is to be added or deducted as the case may be.

The "Phelan Block" is included, at $300,000. Several others reach sums varying from $75,000 to $200,000 each. From this showing, it will be seen that the year 1881 has been one of greater prosperity than either of the preceding five years or more, with very favorable indications of still greater prosperity for 1882. The contrast between 1881 and 1880, as derived from our monthly reports for the prior year, shows as follows:

Total number of building operations of all classes, during 1880	397
Total cost of same	$1,754,435
Increase of building investments in 1881 over 1880	$2,036,288

The foregoing statement of facts alone does not, however, indicate a very prosperous condition of things, as far as the architects of San Francisco are concerned, there being about *seventy-five* in the practice of the profession in this city, as the 533 buildings reported, without any deductions being made from that number for reasons stated, would give to each architect only about seven engagements for the year, as an equal average; and reducing the total stated, by allowing the excesses beyond the average to those who have had not less than two for each month, and the further reduction of the many cases in which no architects have been engaged, would make the pro rata very small among those who have had no more than an average of the lesser number of city engagements. But this is materially changed by the further facts that a large number of plans have been prepared in this city for erections "in the country" and distant places. Fully one-half or more of the engagements in some of the offices have been outside of San Francisco, including almost all sections of this State, Nevada, Sandwich Islands, Central America, etc., etc. Still, even with these facts considered, the number of architects practicing in San Francisco is very large for a city in which there has been but 533 buildings, counted separately, erected during a prosperous year.

If we shall be able to gather additional facts of interest in this connection prior to the issue of our January number, they will appear in due time. And with the advantages secured in obtaining reliable building information, our readers may rely upon the correctness of our reports for 1882. And when, one year hence, we shall repeat our "summary," there is but little doubt that it will be as nearly correct as it is possible to make statements not verified by sworn testimony.

Send for a copy of the "Steel Square and its Uses," handsomely bound and illustrated. Price, 75 cents.

Description of the Steel Square.

Being a History and Description of the Square. Methods and rules given by which the length and bevels are obtained of all kinds of rafters, braces, collar-beams, brackets, etc. Its application to the various cuts in stair-building. The whole designed to be a complete *help* to mechanics, by which they can work in a systematic manner all the various problems in regard to the *cuts in carpentry*.

In the daily pursuit of mechanical operations, the workmen should hold steadfastly to the motto, ACCURACY in all things. It should be the first and most essential requisite, and ever present in his mind. Of necessity, for work to be accurate, tools must be in the same condition; but, like our common humanity, only a few of the instruments used are what they purport to be, *exactly true and correct*. Especially is this fact true of the Steel Square. A considerable portion of them being faulty and imperfect, varying from a "hair's breadth" to material inaccuracy. The APPROXIMATELY square is not a SQUARE. The term admits of no deviation from two perfect right-angle lines. Yet upon test, only a portion of the implements used for the purpose will be found faultlessly true, although perfectly true squares are an absolute necessity to perfect workmanship in any connection. Even if true when they leave the manufacturer's hand, the handling and use, and frequent falling and abuses to which they are afterwards subjected, and sometimes by exposure to extreme heat and cold, changes the relationship of the "tongue" and "blade," and hundreds of mechanics and others pursue their daily avocations with perhaps not one *absolutely true square* among twenty workmen.

The result of using such squares is a large amount of imperfect workmanship and loss of time, which could be avoided by the workmen making a practice of "trying" or "truing" his square at regular intervals.

Unfortunately, many of our mechanics have no well-defined views or rules, by the exercise of which they will be enabled to select, not only well-finished, but strong, durable, and accurate tools, which can be depended upon in every emergency.

It will not always do to accept any certain tool, simply because the maker's name upon it has given it a world-wide reputation, and therefore of necessity must be good. Of course it is always best, as well as cheapest in the end, to call for tools having the greatest reputation, and recognized as the standard of its kind; as it is then that a good judge of tools is enabled to put into practice all those little points that may come under his observation during the time he may have been working at the bench or shop.

There is no instrument in a carpenter's or mechanic's "kit" that should be more strictly and accurately correct in every particular than the one under present consideration. And we propose to be so explicit in our explanation and description of the square, that even an apprentice, after reading these articles, can, not only be able to pick out a good and true square, but also be able to explain intelligently to any one the use of every mark, figure, and line upon it.

The best square known to the trade is that stamped with the number 100 on the face side of the square, at the junction of the "body" and the "tongue," generally called the heel.

The FACE side of the square is that side which is seen by holding the short arm in the right hand and the long arm in the left.

The manufacturer's name and the trade number are always stamped upon the face side. The reverse side is called the BACK.

Of the two arms which form the square, the longer is called the "body," or "blade," while the shorter arm is called the "tongue." The former is 2 feet long and 2 inches wide, while the latter is generally 16 inches long and one and a half inches wide. The "tongue" of the square, however, is of different lengths; the dimensions given are those of most of the squares in common use upon the Pacific Coast. In the Eastern States, the tongue is generally 18 inches long, on account of the "regular framing" of buildings being more generally adopted than on this side of the continent. A square with a tongue 18 inches long is generally known in California as a FRAMING square.

On the outer edge of the face side of the square, the divisions or graduations are marked into sixteenths of an inch on both the "body" and "tongue," while the inside edge is graduated to eighths of an inch.

On the back of the square, the outer edge of both "body" and "tongue" are graduated into twelfths of an inch; while of the inner edge, the "body" is graduated to thirty-seconds of an inch and the "tongue" to eighths.

Our readers will bear in mind that the description here given applies only to the best grade of squares that are manufactured. On cheaper grades the inner edge of the back of the square is divided on both body and tongue into eighths of an inch, and on some, the smallest division is the quarter-inch. Observe that the border around these articles is a perfect fac-simile of the best square there is made.

The first marks that attract one's attention upon examining the square are the divisions into inches, and subdivisions of inches. It will also be noticed that the numbering of the inches on both "body" and "tongue" commences at the heel. This is done simply because it is more convenient to measure from that point.

In picking out a square, notice that all the numbers, and division-marks are clearly and sharply cut. It is in this particular that the result becomes so apparent of the wonderful accuracy of the Bement machines, a description of which was given in our last number.

TO BE CONTINUED.

This series of articles on the square was commenced in our September number. Back numbers can be supplied at 20 cents each.

The Pacific Coast Association of Architects.

The regular meeting of the association was held on Friday evening, December 4th, President Laver presiding.

After the reading and approval of the minutes of the preceeding meeting, Mr. Sanders, chairman of the committee appointed at the November meeting to examine and report upon the "Titus Sewer Trap," read the report of the committee, giving an elaborate description and explanation of said trap and its operation, so far as they had been able to investigate its practical working; and also suggested some *possible* objections, such as that of accumulations gathering on the seat of the valve, thereby preventing a perfect closing or seal. This portion of the report, however, being hypothetical, cannot be considered as proof of an existing fact.

The report was accompanied with a resolution from the committee, "that having examined the Titus Sewer Trap to the full extent of oportunities offered, we have discovered no reasons why the claims of its inventor may not be accepted as reliable."

The view taken of the matter was, that this being a California invention, the members of the association felt disposed and anxious to give it a hearty indorsement and recommendation; but it was deemed to be the wiser course, not to commit the association upon this or any other question, which was not beyond all peradventure, an absolute and unqualified certainty, known to be such by unquestionable practical demonstration, or sustained and accepted theories and facts.

This we may state as a fact, that the association will at all times aid and assist by all proper means, those seeking its influence and indorsement—particularly in home discoveries and inventions; but in protection of its integrity as an association, and to render its recommendations of value, it is but right and proper that its members carefully contest and scrutinize every matter presented for investigation and indorsement, so that no errors be committed, and the association be preserved beyond the reach of blame or accusation, through hasty and immatured action or personal influence.

Matters of *general public interest* legitimately come within the scope of the association purposes, but those which patake more or less of *personal and individual business* importance, however intrinsically excellent and valuable they may be, can be indorsed and recommended by the association only so far as they assume a *general public* character, over and above all *special business* considerations. There are a thousand excellent devices and inventions, which might with equal propriety be laid before the association as deserving favorable recommendation, and the entire time of the members of the society might be occupied upon examining and investigating committees.

The committee to whom was refered the reconstruction of constitution and by-laws of the association, submitted their report, making numerous changes and additions, which under the rule were required to be laid over for one month. And in view of the proposed organization of a *chapter* of the "American Institute of Architects," which may absorb the present organization, a further delay in acting upon the proposed alterations of the by-laws may be necessary.

Seven designs were presented as the result of the competition invitations extended by the association, for the frontispiece, or title-page of this journal. Five of the designs presented exhibited considerable taste and skill in their execution, but as a whole were not entirely satisfactory to the association. In some of the best, local objects and features not of *general* interest, nor having any significence or bearing in connection with the character of the journal for which they were intended, and the members present feeling that the reputation of the profession and the association were to some extent involved in the issue, the designs were refered to a committee of three, consisting of Messrs. Sanders, Curlett, and Curtis, who were invested with discretionary powers in the matter.

We hoped to be able to fulfill the promise made of a new heading for our January issue. If this fails, it will not be our fault, as we are controlled by the facts above related, and shall have to exercise patience and await the result, and trust that our patrons will be content to share with us the annoyance of an additional month's delay, should that occur.

Mr. Laver stated his purpose to seek his former possition as architect of the New City Hall, basing his claim thereto upon the fact, that having designed the edifice and prepared the plans for it, he was better qualified to understand them in all their details, and should have the priviledge of directing and superintending their execution. The members present signified their appreciation of Mr. Laver's position, and resolved without a dissenting voice, to approve and advocate the justice of his application. The secretary was instructed to secure the signatures of as many architects as were in harmony with the action of the association to a recommendatory petition in Mr. Laver's favor. There being no further business requiring attention, the association adjourned to meet the first Friday in January, 1882.

A few members of the profession have since the meeting expressed dissent to the action of the association in this matter, as scarcely in harmony with the objects of the association; but at the same time, without exception, admitting the equity of Mr. Laver's claim to the appointment. Several who personally approve the return of that gentleman to his original position in connection with the New City Hall, have withheld the influence of their names to the petition, but with no feelings of opposition to the appointment.

There are precedents, however, in justification of the action of the association, in which similar organizations have recomended individual members for certain positions; and if the Pacific Coast Association had attained full growth, and become strong and vigorous, with perfect understandings and harmonies among its members, and all feelings of jealousy and mistrust subdued, a proposition of the kind under notice might have been received and determined with more certainty of general indorsement.

We trust that the members of the association will become more strongly impressed with the necessity of regular attendance, so that all future actions may be beyond the reach of irregularities, and the association become strong in the great work which it is destined to accomplish, by united and earnest efforts on the part of its members. Let there be a full attendance at the next rugular meeting, to be held the first Friday in January, 1882.

Renewal and Payment of Subscriptions.

We trust that every present subscriber will at once renew his subscription, and each induce at least five others who have not, to subscribe. We mean progression and improvement in our publication work, and hope our friends will sustain us handsomely. Send $2 for 1882. Remittances by postal money-order, bank-check, or any other convenient means will be duly acknowledged. If postal stamps, send the two-cent denomination. We want a circulation of not less than

20,000 PAYING SUBSCRIBERS.

BOUND VOLUMES FOR 1881

Will be ready for delivery by the 1st of January, 1882, at $2.50. We have on hand a few copies of 1880, and will forward either or both to any address.

Sanitary Progress in Ireland.

Probably, if most of our readers were to express their conception of Ireland and its people, it would be by picturing a mud cabin, with pigs and chickens having full range in the family room, and general squalor and dirt. But it is interesting to have, on the authority of the Lord Chancellor of Ireland, a statement of a large advance in the sanitary condition of the island. This has been brought about by the action of the public health authorities, under various health acts. From the account of the Lord Chancellor it appears that by various acts, down to 1872, the sanitary administration was taken from the parish vestries, transferred to the guardians of the law in 1866, and finally, in the year first named, to the Local Government Guard, which was then created. In 1874 the whole of Ireland was divided into districts, known as urban and rural sanitary districts, the former having a population of about 6,000 each. In towns the governing body of the town is also the sanitary authority in the rural districts; the poor law Unions and boards of guardians are the health authorities. There are in all 56 urban and 163 rural sanitary districts, and in each a complete sanitary staff has been organized.

By the Public Health Act of 1878, all previous legislation was repealed, amended, or reenacted so as to bring into one statute the whole of the sanitary law of the island. The Act deals with sewerage and drainage, scavenging, water supply, abatement of nuisances, supervision of lodging houses, markets, and slaughter houses, and infectious diseases; and in the opinion of the Lord Chancellor its value was readily recognized by local authorities, the amount of loans obtained by them from the Board of Works for sanitary improvements, under a provision of the Act, having arisen from £37,584 in 1875–76 to £200,000 in 1880–81.

As to the importance of the work already done, the Chancellor thinks it cannot be overestimated; but he regards it as highly important that the sanitary work should not stop with lodging houses, but be extended to the wretched cabins of the lower classes.—*Sanitary Engineer.*

Forecasting.

It seems plain enough to us that no part of the city front is destined to be the scene of greater manufacturing activity than that between Francisco, Beach, Leavenworth, and Larkin. A. S. Hallidie has said, that, as soon as the seawall is continued there, he and others will build and run an iron manufacturing establishment on a large scale, immediately eastward of the Selby lead works, between Hyde and Leavenworth. Other works are contemplated by other companies. There are already there the very important and profitable Pioneer Woolen Mills and the Selby Smelting Works. A new cable line on Hyde street is needed, and this, we doubt not, will be provided before long by the Clay street company, within whose jurisdiction it lies.—*McGee's Real Estate Circular.*

Credit to the Four Supervisors.

The four supervisors who so firmly fought the Bay-Shore Railroad franchise deserve great credit and commendation. They are Supervisors Stetson, Eastman, Taylor, and Torrey. We are sorry these men are now going out of office. We are especially sorry that the city is losing Mr. Stetson. He is not only a thoroughly honest, but also an exceedingly able, man.—*McGee's Real Estate Circular.*

☞ **Subscription price of this journal for 1882 will be $2.00 in advance.**

The American Institute of Architects.

The fifteenth annual session of the Institute convened at the city of Washington, D. C., on the 16th of November, 1881. Mr. John H. B. Latrobe of Baltimore delivered the opening address, selecting for his subject—"Washington and the Capitol at the beginning of the present Century." The address is spoken of as one of great interest, and was received with the deepest attention. It occupies about three and one-half columns in the *Baltimore American*, and is altogether too lengthy for reproduction in full in our columns. The following extracts must suffice:

"The permanent seat of the Government of the United States was selected only after much contention and bitter debate. Fisher Ames, on the 27th of August, 1789, doubted 'whether the Government would stand the shock of a selection which involved as many passions as the human heart could display.' Wadsworth, of Connecticut, said 'that he did not dare to go to the Potomac. He feared the whole of New England would consider the Union dissolved.' There was much more said in the same style. Finally, the Senate adopted an amendment to a House bill, and by a vote of 10 yeas to 7 nays fixed upon Germantown as the permanent seat. In this amendment the House concurred by a vote of 31 yeas to 24 nays, notwithstanding Mr. Madison's asking for delay, 'that the eye of America should be indulged with an opportunity of viewing it before it made it their fixed abode.' In accepting the Senate's amendment, however, the House added a proviso 'continuing the laws of Pennsylvania in force within the ceded district until Congress should otherwise provide.' This, of course, sent the bill back to the Senate for concurrence; but it being within twenty-four hours of the close of the session, a motion was carried to postpone the further consideration of the bill to the next session of Congress. At the session of 1790 the same angry debates were resumed; but at last, on the 16th July, an act was passed authorizing the President to appoint commissioners to survey, under his direction, a district of territory, not exceeding ten miles square, between the mouth of the Eastern Branch and Conococheague, when the President, himself an old surveyor, described, by metes and bounds, the district which, by his proclamation, dated Georgetown, March 30th, 1791, became the permanent seat of the Government of the United States. Mr. Jefferson, in his Ana, says that the selection was a compromise brought about by Hamilton, by which he secured a majority for the assumption by Congress of the debts of the several States."

"To prepare the plan of the future city, the commissioners appointed Chas. Pierre L'Enfant to be their engineer. He had come to America as an officer in the French line in 1777, was wounded in the assault of Savannah by D'Estaing, was taken prisoner, was exchanged in 1782, became major of engineers in 1783, was sent to France by the Society of the Cincinnati to arrange for the engraving of its gold badge, and being accomplished in many ways, was employed on his return by Robert Morris to design a palatial residence in Philadelphia, which never rose above the cellar story. In 1789, we find him preparing the old City Hall in Wall street, New York, for occupation by Congress after the adoption of the Constitution."

"It would appear from a letter of General Washington, dated April 30th, 1791, that he intended the seat of Government to be called 'the Federal City.' But in the instructions given by the commissioners to L'Enfant, they say: 'We have agreed that the federal district shall be called the Territory of Columbia, and the federal city the City of Washington,' which was made the title of the map. When this was finished, and the public sales were about to begin, from the proceeds of which the public buildings were to be erected, L'Enfant refused to submit his work to public inspection, his excuse being that certain neighborhoods would be seized by speculators, and shanties run up where he designed palaces to be constructed. This not being General Washington's view of the matter, the commissioners took possession of the map, and L'Enfant's further services were dispensed with. In 1812, he was employed by Mr. Madison to plan a fort on the Potomac below Washington; and later, Mr. Monroe offered him a professorship at West Point, which he did not accept. There are those yet living who remember seeing him, in his somewhat peculiar dress, wandering, an aged man, in the streets of Washington as late as 1825. In this year he died, taking his place in the ranks of the vast host of the forgotten *bene meritos*. He lies buried on the Digges farm, close by his last work for the United States—the fort on the Potomac."

"The Act of 16th July, 1790, had directed the commissioners to provide, prior to December 1st, 1800, suitable buildings for the accommodation of Congress, on plans to be approved by the President; and in March, 1792, a premium was offered of $500, or a gold medal, by advertisement."

"The result of the advertisement for plans for the Capitol and President's house verified these remarks, and inasmuch as pains had been taken to publish it in all the principal towns and cities, the architectural ability of the United States may be reasonably supposed to have been brought to light, as it existed in the last decade of the eighteenth century.

"I have had access to some eight or ten of the designs offered in competition. All of them are bad, very bad, indeed—the greater part below contempt, and some border upon the ludicrous. In one, a triple window has a cornice broken by an arch over the central opening, on either side of which is a man rampant, with one foot on the arch and the other on the level of the cornice. This competitor evidently thought himself strong in statuary, and placed an array of figures on the parapet of the President's house of the most portentous description. Another competitor exhausted himself on the face of a clock, where the twelve letters in the words United States are used to mark the hours. The spread-eagle seems to have been regarded as an essential in some of the designs, and the bird exhibits itself on pediments and in weathercocks in most extraordinary shapes. One of these national birds is carefully drawn with the wings of a penguin and a breast-plate of thirteen circles, ingeniously arranged. Another competitor has devoted the greater part of his labor to portraying the separate chairs of senators and representatives, and indicating the color of the leather, or other material, for the seats. Another ventures upon perspective, and makes a sad affair of it. Take them all in all, they are, indeed, a sorry lot.

"Among the competitors, however, were William Thornton and James Hoban. To the first was awarded the premium for the Capitol, while the other obtained that for the President's house.

"In an address delivered at the tenth annual convention of the Institute, Thornton is spoken of as 'an English amateur who had come from the West Indies, was a thorough man of the world, founded a race-course, and sported blooded horses.' Thornton was more than this, however: he was a man of genius and a philanthropist, who offered to take a colony of negroes from the United States and establish it on the coast of Africa, anticipating the work of the American Colonization Society. But he was not an architect—claiming, indeed, no more acquaintance with architecture than he had acquired in two weeks' study in the Philadelphia library. Incapable of appreciating the difficulties of the profession, self-reliant, impulsive, and impatient, it was not to be wondered that he quarreled with those who undertook to execute his suggestions, for his plans amounted to little more. The address just referred to says, further, that Thornton 'succeeded in having the plans of Stephen I. Hallett, a French architect who had been one of the competitors, superseded by his own, and in having the premium awarded to himself.' This does not appear to have been the opinion of Mr. Jefferson, who was Secretary of State at the time, and greatly interested in the subject. In a letter addressed by him to Mr. Latrobe, July 28th, 1804, he says, referring to the plans in competition: 'Many were sent in. A council was held by General Washington and the board of commissioners, and after a very mature examination two were preferred, and the premiums given to their authors, Dr. Thornton and Hobins (*sic*).'

"I have the very drawings. On the margin of one is written, in Mr. Latrobe's (father of the speaker) hand: 'Given to me by George Blagden, as the only existing drawing of the Capitol, May 3, 1803.' On another: 'Received by B. H. Latrobe from the President of the U. S., January 12, 1805;' on the third, 'Plans of the Capitol received from D. Thornton, April, 1806.' I have in my possession what purports to be Hallett's original design, obtained by Mr. Latrobe from Mr. James Greenleaf, a prominent person in Washington at the time, who seems to have received them from Hallett himself. That he (Hallett) was an accomplished architect, seems to have been admitted on all hands; nor does the fact that he was employed to carry out Thornton's plan absolutely militate against his claim that this was in fact his own. That Thornton and the commissioners quarreled with him, is very certain; and about July, 1794, he was discharged.

"Hallett's successor was George Hatfield, an English architect of talent, skill, and experience, a refined and estimable gentleman, who, among other edifices, designed the City Hall in Washington. During four years of strife with Thornton and the commissioners he kept his place, but at last was driven away; and in May, 1798, ceased to be employed at the Capitol.

"Mr. Latrobe came accordingly. His salary, being $1,700 while visiting Washington occasionally only, increased to $3,500 when he made his permanent residence there. The eight or nine months, as we will see, extended to as many years.

"When Hatfield went down, like Hallett, before Thornton, Hoban, the architect of the President's house, took charge, with no better fortune than his predecessors. Thornton was still impracticable and the commissioners offensive. He kept his place, however, until 1802, when the executive authority was transferred to a commissioner, and in 1803 Mr. Jefferson, then President, appointed Benjamin H. Latrobe as surveyor of the public building, which was the title of the office of architect.

"Although for the purposes of the present narrative it would suffice to state the simple fact of Mr. Latrobe's appointment, yet the letters of Mr. Jefferson conferring it have an interest that leads me to insert them:

"WASHINGTON, March 6, 1803.

"*Sir*—Congress have appropriated a sum of money ($50,000) to be applied to the public buildings under my direction. This falls, of course, under the immediate business of the superintendent, Mr. Munroe, whose office is substituted for that of the board of commissioners. The former post of surveyor of the public buildings, which Mr. Hoban held till the dissolution of the board (at $1,700 a year), will be revived. If you choose to accept it, you will be appointed to it, and would be expected to come on by the 1st of April; indeed, if you could make a flying trip here to set contractors at work immediately in raising freestone, it would be extremely important, because it is now late to have to engage laborers, and the quantity of freestone which can be raised, delivered, and cut in the season is the only thing that will limit the extent of our operations this year. I set out to-

morrow for Monticello, and shall be absent three weeks, but shall be glad to receive there your answer to this. Accept my friendly salutations and regards. THOMAS JEFFERSON.

"P. S. — On the raising of the freestone be pleased to consult Col. D. C. Brent, who can give you better information and advice on the subject than any other person whatever, having been much concerned in the business himself.

"Architects were not regarded socially, as a general rule, at the beginning of the century in the United States as they are now. In a letter to Volney, dated July 11, 1811, Mr. Latrobe says: 'Thinking only of the profession, and of the affluence which it yields in Europe to all who follow it, you forget that I am an engineer in *America;* that I am neither a mechanic nor a merchant, nor a planter of cotton, rice, or tobacco. You forget—for you know it as well as I do—that with us the labor of the hand has precedence over that of the mind; that an engineer is considered only as an overseer of men who dig, and an architect as one that watches others who hew stone or wood. But, in fact, the profession is becoming by degrees better known and respected.' It may be added that in this respect things, indeed, have changed in eighty years.

"Too brave to yield to mere opposition, however violent; too proud to conciliate by flattery to avert it, confident that his works would be his vindication, Mr. Latrobe's voluminous correspondence shows throughout that he never lost sight of the dignity his profession required him to maintain; and as he loved it, so he fought for it, and in the end he won.

"It would not be right to omit, in an account of the old Capitol, several whose names are associated with it. Lenthall, the clerk of the works, a man of singular ability, I have already mentioned. Another was George Blagden, who was in charge, after Hallett and Hatfield and Hoban left, and on whose integrity, intelligence, and skill Mr. Latrobe seems to have placed implicit confidence. Then there were Andrei and Guiseppe Franzoni, brought, at Mr. Jefferson's instance, from Italy, in 1805—the first a sculptor of architectural decoration, and the other of figures. Besides their own handiwork, they instructed others; and in one of Mr. Latrobe's letters he speaks of four Americans, taught by Andrei, engaged upon the Corinthian capitals of the Hall of Representatives.

"It was Franzoni who modeled the corn-stalk columns already referred to, and a statue of Liberty, which, with other of his work, was destroyed when the old Capitol was burnt. He was followed in 1815 by his brother, Carlo Franzoni—a man of decided genius, great readiness, and a thoroughly educated sculptor. He modeled the figure of History in Her Car, with which we are all familiar in the present Hall of Statues; also, figures of North and South Carolina, represented as sisters, the arm of one around the neck of the other; Massachusetts and Maine, a mother leading her child, for Maine was as yet a district only. There were figures of the heroic size, a part of a series intended by Mr. Latrobe to have places in the building. Another work of Carlo Franzoni is the figure of Justice in bas-relief in the law library of the old north wing. Other sculptors followed these—Consici, Capellano, and more; but with the old Capitol the names of Andrei and the Franzonis ought to be inseparably associated."

After this address, officers were elected, as follows: President, T. U. Walter, Philadelphia; Treasurer, O. P. Hatfield, New York; Secretary, A. J. Bloor, Philadelphia; members of Board of Trustees, Messrs. H. M. Congden, E. T. Littell, J. C. Cady, and Napoleon LeBrun, all of New York; Committee on Publication, Messrs. A. J. Bloor, Philadelphia; H. H. Holly, New York; T. M. Clark, Boston; John McArthur, Philadelphia; members of Committee on Education, Messrs. Wm. R. Ware, New York; N. Clifford Ricker, Champaign, Ill.; Henry Van Brunt, Boston; Alfred Stone, Providence; and Wm. Spotter, New York.

House-Painting.

House-painting is a subject seldom treated to a proper discussion of its merits. And it is for this reason we wish to offer a few reflections upon a topic of so much importance to the owners of dwelling-houses. In some foreign countries, the houses are tinted with colors derived from Nature's own laboratory, and they are composed of red and yellow ochres, which, with white wash, serve to adorn their concrete or *adobe* buildings. The rude distemper colors were fully in harmony with the natural surroundings of climate and people. In Mexico, we find some very picturesque places, where, on the mountain sides or along the cliffs of a cañon, as at the city of Guanajuato, the highway is adorned with residences of the most beautiful style. Graceful pillars in long colonnades, arched portals and corridors, and all built with a parti-colored sandstone. This stone is quarried from a mountain above the city, called the "El Buffa." There is said to be unlimited quantities of this lined and beautifully variegated sandstone, in colors of blue, pale green, and chocolate or amber, the latter predominating. Thus we find in nature, provisions made for decorating the palatial residences in the most elaborate manner. In countries where the great centers of population exist, where architecture is enthroned, and the mechanic arts thrive, and the hum of machinery is heard, there we shall find civilization advanced. So we find in our large cities and towns in the United States, where industry and thrift have enriched the population, there we shall see beautiful houses, from the humblest cottage to the palatial residence of the wealthy classes. And what adds more to their beauty than the manner in which these houses are painted? In villages or suburban towns, where the landscape surroundings of dwellings are great adjuncts to their beauty, the style of their painting is necessarily more free. And large plain houses look well in white, with green blinds. The villa or gothic formed cottages look well invariably in a suit of colors, though some plain or less adorned ones look fine in a negative color.

Body tints to all houses with picturesque surroundings should never be draped with heavy tones in the base or approaches to the dwelling. For instance, a stylish house painted with light shades, the painter should not suffer the under shadows to become too deep. The lighter toned base lines raise into prominence the object painted, and heavy colored lines and approaches (in the form of porches with their steppings) are depressed, and the house has the appearance of sinking, and is lost to view behind the garden foliage. Bright cheerful colors are the "*buena vista*" to the pastoral cottage. In cities, the painting of houses is more complex, for there is a great diversity of taste, and is less homogeneous than in the country towns. The colors employed are generally heavy in tone, especially in business portions, where the dark shades predominate. White paint looks well but a short time, for the simple reason that dust soils it easily; but the great detriment to white pigments in cities is the prevalence of sulphuric acid vapors in the air, coming from the great consumption of coal, and the many refineries in the city. In fact, all paints composed of carbonat of lead are more or less effected by it as well as by the saline influence of the trade-winds coming from the Pacific Ocean. The best protection to paints in this climate is pure boiled oil, for it dries quicker, and thus holds the oil on the surface, whereas, the raw oil will penetrate more while hardening, and has less hold on the pigment. The enduring qualities of oil is probably about the same; though I would incline to the boiled, as there is less foots or sedimentary particles in oil that has been treated with heat. The season best adopted for painting is cool weather, which in this climate is in the fall, winter, and spring months. Avoid the dense fogs that prevail, in order to retain the gloss of the oil, which is the great preservative of our buildings. Thin coats of paint are much better than thick ones, as the oil is the life of the mixture; and by putting on two thin coats instead of one thick or heavy coat, to old work, the durability and beauty of the work is more than doubled by the operation. In mixing paints when dry pigments are used, time should always be allowed for them to become thoroughly incorporated before using; as in the case of immediate use, the building suffers for the want of oil, and the shade of color is affected and sometimes wholly changed by the dry materials in their continued absorption, deepen in shade, or they macerate under the friction of the brush, leaving spots of a different tone on the body of the color. To avoid this danger, all colors entering into a mixture should be ground in oil, and the whole compound should be passed through the strainer, thus securing a continuous even shade of paint. In laying on paint, where there are several journeymen at work, care should be given to the brushes, that they are all provided with brushes of the same length, so that each person may employ the same amount of color; whereas, if the brushes are of dissimilar lengths, the short or stubby tool will carry less paint, and spreads that little farther, and injures the general effect of the work to be done.

J. E. W. C.

Ventilation of Chambers and Sleeping-Rooms.

A vast amount of sickness and enfeeblements are experienced in families from the unwise habit of sleeping in poorly ventilated, or entirely unventilated, rooms. There is nothing more prejudicial to human health than breathing and re-breathing the vitiated atmosphere of a close bedroom. Such rooms, above all others, should be thoroughly ventilated—much more so than "sitting" and "living" rooms, because in the latter the air is constantly undergoing changes, by the opening and closing of doors, and the passage to and fro of persons; while chambers have none of the benefits derived from outside doors, and such changes as do occur are from the in-door air, which, from the moment it enters within the walls of a building, *commences* its process of deterioration—except the little direct *fresh* air which finds its way in through the cracks and joints of the openings, or an occasional raising of windows. Almost every one has at times noticed, upon entering chambers in which people have slept, the impure character of the air, and the more or less offensive smell that has existed in them—sometimes reaching an unbearable condition to those who have just prior thereto enjoyed the health-imparting freshness of the uncontaminated out-door atmosphere.

The *sweetness* of refreshing sleep is but seldom experienced by those who shut themselves up for the night in close rooms. Dull slumbers may fall upon them; but the morning light finds them not refreshed and invigorated as are those who sleep in apartments in and through which currents of pure air are permitted to pass.

"Sick folks" sometimes find relief from "camping," or sojourning at watering-places, and the benefits received are generally attributed to a "change of air," or the water, and other causes; but the underlying secret is more in being forced to breath a greater amount of fresh air, and relief from close sleeping-rooms, than any other. Direct drafts should be avoided, but otherwise sleeping-rooms should be thoroughly ventilated and filled with pure air.

☞ **Subscription price of this journal for 1882 will be $2.00 in advance.**

Why the "City Press" do not always Copy our Reports.

During the closing year the "daily press" of San Francisco has frequently indulged in glowing "head-lined" statements of building activities, "*Booms in Building Operations*," etc., all of which have been in a measure pardonable, although not correctly setting forth the actual facts.

We can very readily understand the motives actuating our contemporaries in this connection, and do not charge any impure motive in the course pursued, inasmuch as the purpose of such statements has been to revive, stimulate, and encourage investments and improvements. We have so long remained under depressed conditions, and extreme dullness has pressed so heavily upon the people of California prior to the present year, that all classes have become restless under such severe business restraints and depressions, and experienced extreme eagerness to witness a bursting asunder of the bands which have so long fettered all interests. There are but few communities less calculated to endure prolonged adversities with patience, and none which more quickly and vigorously spring into activities when the dawn of light and relief appears. Hence, it is pardonable in the journals of a city populated with such as are found in San Francisco, to lead in advance of coming events, even by a little *elaboration* of facts for the purpose of inspiring hopes and arousing energies which otherwise might have remained inactive. This has been done repeatedly, without harm to any, by statements of a general character, that a "boom" in building existed in San Francisco. But so far such statements have been only the "wish as parent to the thought," nothing of a *boom* character having thus far been enjoyed. The most that could at any time be claimed, with exact truthfulness, was simply increased activities sufficient to encourage and sustain the hope that in the near future building operations might assume enlarged proportions—equal to the years when every man's hands were full, and the Macedonian cry went forth, "Come over and help us." Anticipations and hopes have been construed into fixed facts, and good prospects transformed into realities.

On the other hand, the monthly reports of *building intelligence* appearing in this journal have shown *in detail* the true condition of building activities for each thirty days, closing with the tenth of each month. In no one month during the three years' existence of this journal have the actual facts sustained the "boom" theory; but it would not have been consistent in those journals who had during any one month made *very large* statements to cast shadows over their assertions, by copying our more moderate, yet approximately at least, correct record of facts, showing far less than sufficient to sustain the "boom" idea. Hence it has occurred, that when we have been able to make the better monthly showings, our reports have been by some of our contemporaries copied in full with proper credit; by others, the larger operations have been culled and commented upon, while others in some cases have appropriated our matter entire, without the *decent editorial fairness* of proper acknowledgments. But the months in which the reports have shown a *moderate* state of affairs, with but few or no large buildings commenced, no reference has been made to them.

This may be good policy, but it does not affect the status of this journal as furnishing the more reliable reports of building intelligence for this city.

There is also these two material facts which operate in this connection: *first*, our reports are always made up by careful personal canvass, with all reasonable care to avoid errors and omissions, containing only such cases as have passed to contract, and in reference to which there is at least a reasonable certainty of erection; *secondly*, we have noticed references to buildings in other journals which had been reported in this journal one, two, or three months prior, and sometimes we have seen the same improvements noticed and commented upon more than once, thus duplicating and magnifying actualities.

But in closing our third year of journalistic labors, no other than kindly sentiments are entertained toward any, and it would be an act of ingratitude did we not return sincere thanks for the *many scores* of complimentary notices volunteered by the journals of this and other States. We hope to be able in the future to justify all that has been said in commendation and praise, and to win still greater approval and approbation, both from our contemporaries at home and abroad, and from every reader of this journal.

Unskilled Labor, Apprenticeship, and Chinese Labor.

"Unskillful labor is likely to have a struggle against low wages and high-cost living this winter. The prices of the necessities of life have advanced fifteen to twenty-five per cent., but wages have not. Skilled mechanics, on the other hand, have all they can do at good wages. Young man, learn a trade, and learn it well.—*American Mechinist.*

Our contemporary is right, so far as it goes; but it presents only the exterior aspect of affairs—a trimming of the branches, while the subtle worm is at work at the root of the great tree of labor. It is well and right to advise every young man to learn a trade, but it is one thing for youths to *receive this advice*, and another to *secure a place to learn a trade.* In the Pacific States, particularly, it is a very difficult matter for lads to obtain situations as apprentices, and the same difficulty more or less exists everywhere; so that the advice given points to a something beyond the reach of available opportunities to hundreds of thousands of the rising generations, who enjoy all the natural qualifications to become first-class mechanics; and thousands of "hoodlums" swarm the great cities of the United States, because they cannot find employment as apprentices to learn trades. And this exclusion from better advantages naturally forces them to such means of livelihood as can be obtained, or to idle or vicious practices.

But the EVIL GREATER THAN ALL OTHERS is that of Chinese labor, which, if permitted to spread itself throughout the United States, will a thousand times told, increase the difficulties in the way of young men learning trades, and surround both skilled and unskilled labor with conditions which will depress and humiliate both; while the Mongolian hordes will grow fat, and laugh at the *increase of cost of living*, as they will do everywhere, as they have done on this coast, import or produce from fishing, gardening, and the like, nearly every edible, wear no apparel except those made by Chinese hands, and occupy sheds, shanties, and dilapidated structures,—such, that if no better accommodations were provided for the convicts of our county, the voice of humanity would everywhere be heard in denunciation of such inhuman treatment. There is neither speculation nor prophecying in there statements, but facts fully established by 30 odd years experience in San Francisco, and all other cities where the Chinese have located in considerable numbers. So that while the advice for young men to learn a trade is good, the more essential is to direct all efforts to making the learning *possible*, and to *drive back* the oriental flood, which threatens to deluge the land, and which, if not checked, is certain to bring with it the *debris* of a race of people, the masses of which are by education and in effect as antagonastic to the laboring and every other best interests of the country as it now is, as it is possible to conceive.

Every Carpenter and Mechanic

Within the boundaries of the Pacific States and Territories, without regard to trade or pursuit, should subscribe for this journal. It is the only publication issued west of the Rocky Mountains in their interests, and none should withhold his hearty personal support and influence. Its improvement and enlargement simply awaits liberal in-pouring of *cash subscriptions*, which will enable and stimulate greater outlay, and its consequent greater value to all classes of subscribers. It costs a large amount of money to carry on a publication work of this kind—much more, comparatively, than an exclusively literary journal, without illustrations; and nothing less than

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will be sufficient to furnish the funds necessary to conduct this journal upon the *extensive and comprehensive scale and basis* laid out for it by its managers.

The supposition that there is a too limited field on this coast for the production of a continuously interesting publication of this character,

IS NOT A FACT.

We find the sources of interest and information unlimited, and we propose to use them profitably to our patrons—not only the mechanical classes, but to every occupant of buildings,

WHETHER AS OWNER OR TENANT.

Owners of real estate and heads of families will find in its columns suggestions, facts, and illustrations of great value in reference to correct methods of construction, sanitary, and other sciences, and matters of local interest. We therefore ask one and all to aid us by their subscriptions and personal influence in making this the most valuable and instructive

ARCHITECTURAL, MECHANICAL, AND SCIENTIFIC JOURNAL

published within the confines of the Pacific States.

The Cultivation of Chestnuts.

The *Rural New Yorker* remarks: As a remunerative crop, chestnuts have not received their share of attention, and we presume it will be long ere the raising of chestnuts-trees is made a part of our rural industries. But may there not be money in it? In some foreign countries the chestnut crop is equivalent to the wheat crop in America, both as respects its money value and the uses to which it is put. Chestnut bread, a thing of which Americans are wholly ignorant, constitutes the principal food of thousands in Europe and Asia. The fruit is ground into meal, and puddings, cakes, and bread are made from it. Ohio statistics show that her chestnut crop is valued at $60,000, and it could soon be made to reach ten times that amount. The tree is of quite rapid growth, attaining the hight of fifteen to twenty-five feet in five years, from the seed. It is, as we know, valuable as timber; can it not be made more valuable here for its fruit?

To Preserve Iron from Rust.

M. Ventura Serra, after many years of experiment and observation, having noticed that knives used in cutting plants belonging to the family of Euphorbiaceæ did not rust, is led to recommend for this purpose an alcoholic solution of gum (resin of) euphorbium. This, when applied to steel, iron, or copper, forms a thin, uniform, and very adherent layer, which effectually protects the metal. Experiments with copper immersed in sea-water—a ship's sheathing—were followed by gratifying results.

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

BUSINESS MANAGER OF ARCHITECT: I take the liberty, being a stanch supporter of your Journal, to ask a few questions which I hope you will answer explicitly, as the answers will be of interest to a large circle of your readers. 1st, When and where was glass first made? 2nd, A description of the process for making *plate glass*. 3rd, Why would it not be profitable for a company to make plate glass in California? How is stained glass made? A. J. W. S.

ANS.—1st. According to Pliny, the Roman writer, glass was first found by some Phœnician sailors, whose ship was driven ashore at the mouth of the river Belus in Syria. The sea being rough, they cooked their dinner on the beach. No stones being handy on which they could rest their cooking utensils, they took some pieces of nitrum with which their vessel was laden, upon which they rested their kettles. This substance and the sand, melted by the heat of the fire, ran together and made glass, which the sailors were suprised to find among the ashes. This story however, is not to be relied upon, as it would take a much stronger heat to melt glass than could be obtained from an open fire. It is certain, however, that the Phœnicians knew how to make fine glass, which they cut, engraved, gilded, and stained in the most beautiful colors. They probably learned the art from the Egyptians, who made glass at least 3,000 years before Christ. In some of the tombs near Ancient Thebes are still to be seen pictures of workmen blowing glass in the same way it is blown to-day. The Greeks knew how to make very beautiful glass, and a large number of ancient cups, bottles, vases, and urns of many shapes and colors, found in tombs on the island of Cyprus by General di Cesnola, are now in the Metropolitan Museum of New York. The making of glass was not carried on in Rome until about the first century before Christ. After Rome was destroyed, the art of fine glass making was nearly lost, and only churches and public buildings had glass windows. For a long time, the Venetians made the best glass in Europe, and it is probable that they first made glass mirrors. Three hundred years ago, glass windows were so rare in houses in England, that only castles and houses of the rich had them, and the window frames were often taken out and packed away for safe keeping, when the family were not at home.

2nd. The glass is dipped out of the melting pots into smaller ones, called cisterns, which are so made that they can be hoisted out by means of a CRANE, and their contents emptied upon what is termed a casting-table. This is a large, thick iron table, made perfectly level and smooth. The melted glass is poured quickly over the table, being kept from running off the sides by long strips of metal, which are just as high as the thickness of the glass to be made. A heavy copper roller, whose ends rest on the strips, is then rolled over the glass, which spreads it out to the same thickness on all parts of the table. If there is too much glass, some of it runs over the edge and falls into water. As soon as the plate is cool enough to be moved, it is put into the annealling oven, where it stays five days. When the plates are taken from the oven, they are examined to see if they are fit for large plates; if any are found with flaws in them, they are cut up into small plates. The plates are finally ground by rubbing two of them together with sand and water, and are then polished bright with EMERY and water, and finally with FELT rubbers.

3rd. We suppose it would be profitable for a company to make plate glass in California, provided all our dealers would buy exclusively from the home company.

4th. Stained glass is made by painting the surface of clear glass with various materials, chiefly the oxides of metals mixed usually with oil of turpentine. The pictures are painted with brushes like oil paintings. The glass is then heated red hot in a furnace until the colors become stained into it. By this means, a complete picture can be made on one large pane of glass, which in old times was made up of a great number of small pieces set in lead frames.

ANS. to C. R.—The word *lath* is from the Anglo-Saxon *latter*, and signifies a rod or staff.

A correspondent desires us to give a full account of the art of lithography. We have not the space to detail all the various operations necessary to produce a fine lithograph. Briefly stated, the operation is as follows: The artist draws his picture on the stone, just as he would on paper, using crayons made mostly of tallow, wax, hard soap, and shellac colored with lampblack; and the ink used is a little piece of crayon mixed with water. When the drawing is finished, it can be easily washed off with a wet sponge; but weak NITRIC ACID is poured over it, the acid unites with the ALKALI in the soap of the crayon, and the rest of the crayon cannot be washed off. The acid also eats into the stone a little in all the parts not covered by the ink, and this leaves the line of the drawing a little higher than the other parts. After the drawing has become dry, it is ready to be printed from. The stone is fastened on the bed of the press, and then wet with a sponge. The water wets all the clean parts of the stone, but not the parts drawn upon by the greasy crayon. The drawing is then inked with the common printer's roller; the ink sticks to the greasy lines of the drawing, but not to the wet part of the stone. The pictures are then produced on paper, the same as any ordinary printing is done.

BUSINESS MANAGER OF ARCHITECT: What materials were stoves made of before iron was used? When were iron stoves first used.

J. G. I.

ANS.—The Romans used stoves made of brick, tiles, soapstone, or slate. In Sweden and Germany, stoves made of tiles and plates of porcelain are still in use. Iron stoves were first made in the early part of last century.

BUSINESS MANAGER OF ARCHITECT: In Everybody's Column, a few months ago, you informed your readers that the largest bell in the world was at Moscow. Perhaps it would interest your patrons to know that there is a much larger bell in Japan. The Moscow bell is 19 feet 3 inches high, while that in Japan is 24 feet, and 16 inches thick at the edge. It has no clapper, but is rung by means of a great beam of wood, which strikes it on the outside. R. J.

ARCHITECT AND BUILDING REVIEW: What is a joggle joint, and how is it made?

APPRENTICE.

ANS.—It is a joint made between two bodies by cutting jogs or notches in their sides, and fitting in pieces. The joint is called joggle joint, and the pieces put in are called joggles.

BUSINESS MANAGER OF ARCHITECT: Please settle the following controversy between two students. A claims that the design of the "Corinthian Capital," in the order of architecture of that name, was the result of deep study on the part of one of the ancient architects. B claims that it was by accident that the order originated. Who is right?

T. & D., Berkeley.

ANS.—The idea of the Corinthian capital is said to have been derived from a plant called ACANTHUS, which has pointed prickly leaves. The story is, that a young girl of Corinth died, and her nurse collected the articles which she had loved, put them in a basket on her grave, and laid a tile on top of it. By chance, the basket was placed on the roots of an acanthus plant, and this, sprouting in the spring, partly covered the basket with its leaves, some of which, reaching the tile, turned downwards. An architect named Callimachus, who happened to see it, was struck by its beauty, and thought it would make a fine capital for a column; and by changing it a little, he made the Corinthian capital and column.

EDITOR OF CALIFORNIA ARCHITECT AND REVIEW:—Will you please answer the following in your next issue, and oblige: If an architect gets a copyright of his drawings on a structure in process of erection, can another party obtain a patent on said drawings or structure.

ARCHITECT.

ANS.—Your question is rather complex. A copyright, in conformity with the law regulating the same, will protect your *drawings*, but furnishes no protection to the *structure* erected under said drawings. A copyright applies only to representations and designs made on paper, parchment, canvas, cloth, or other fabric—photographs, paintings, chromos—the *pictures* of structures, machinery, etc., etc.; but not to the thing or structure produced in *mechanical execution* from such drawings. These can only be protected by caveat or patent.

"Our Illustrations."

Plate No. 1 represents plans and designs for a two-story cottage in Eastlake style, with attic-story additional, adapted to country or suburban localities. S. & J. C. Newsom, Architects.

Plates 2 and 3 are the elevation and plans for a proposed "bathing palace," designated to be erected in San Francisco, a full description of which will be found in another column.

During the next volume of this journal, we shall make a much better showing in our illustrations. We have before stated the difficulties in producing meritorious cuts; but as soon as the better facilities can be reached, they will be availed of, and this department of the journal be made equal to many of the Eastern journals in this particular. And when we secure the minimum of our ambition—20,000 paying subscribers—neither in cuts nor reading matter will this journal be excelled. A beautiful illustration of the "Tabor Grand Opera House and Hotel," Denver, Colorado, will appear in the January issue, together with several other illustrations.

Physicians and Population.

The *Practicien* gives the following table, as showing the proportion between physicians and population in the countries named:

	Per million.
Austria	610
England	600
France	291
Germany	321
Italy	610
Switzerland	706
United States	1,624

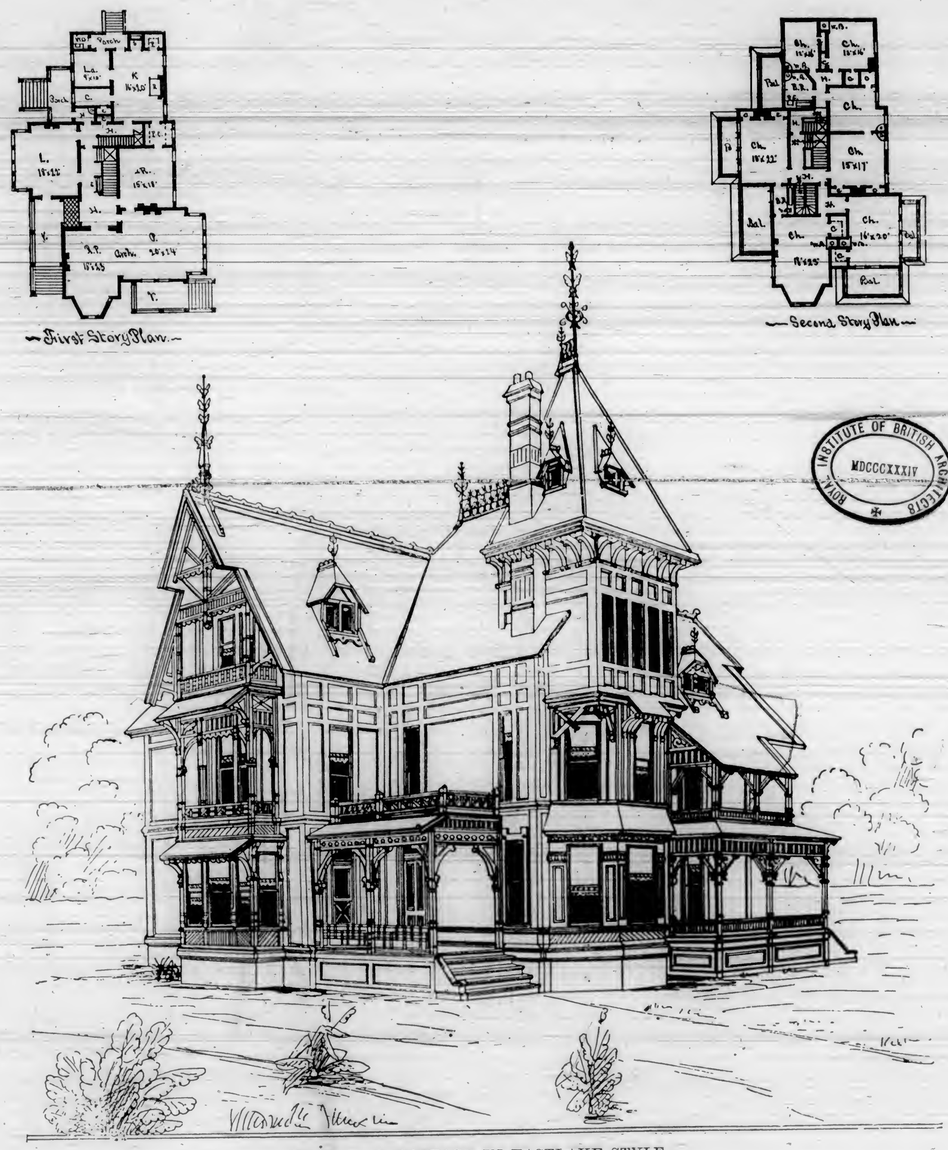

PLATE 1.—A COTTAGE IN EASTLAKE STYLE.

ROYAL INSTITUTE OF BRITISH ARCHITECTS MDCCCXXXIV

PLATE 2.—PROPOSED NE THING ESTABLISHMENT.

ROYAL INSTITUTE OF BRITISH ARCHITECTS
MDCCCXXXIV

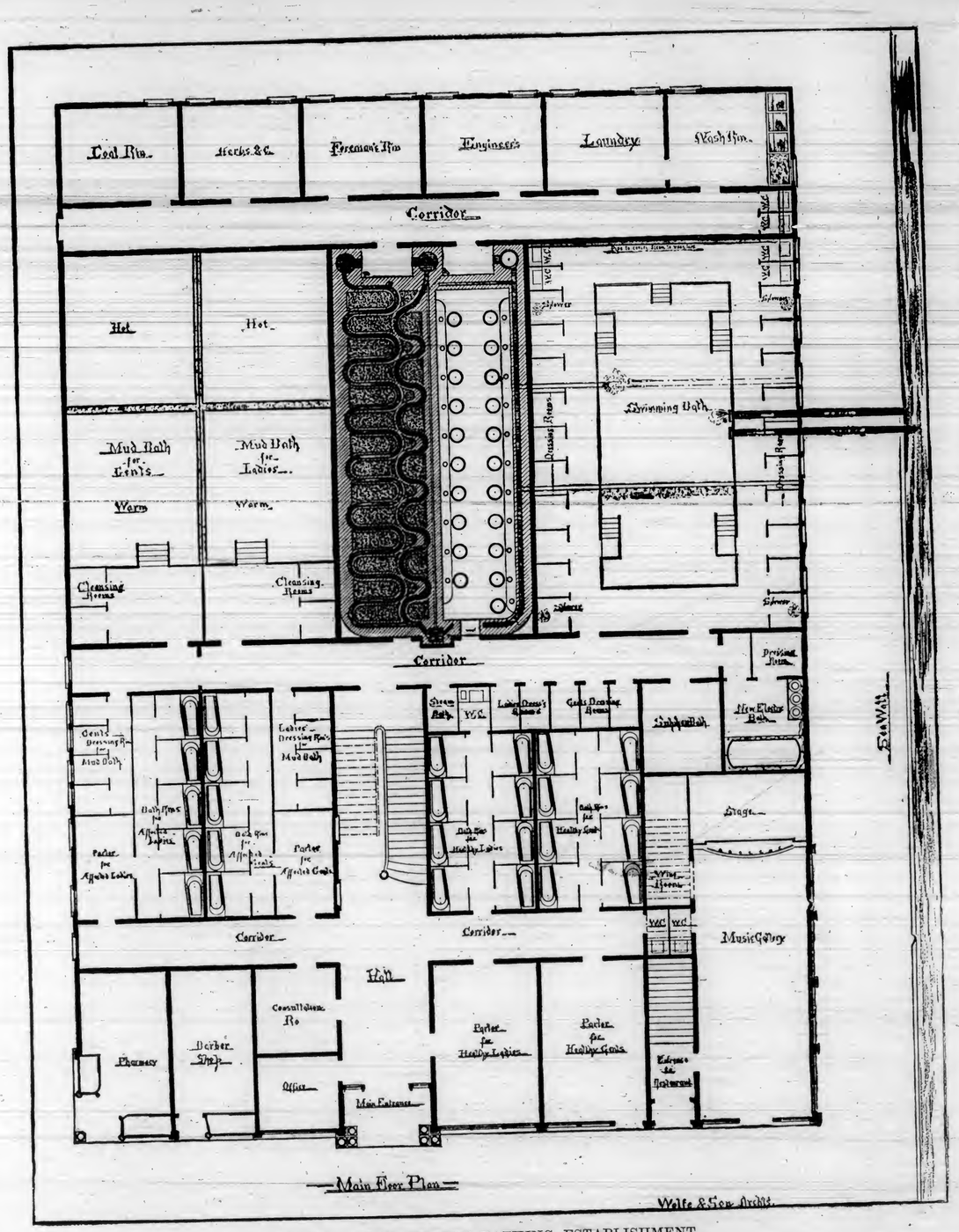

PLATE 3.—PLAN OF NEW BATHING ESTABLISHMENT.

A Projected Immense Bathing Establishment.

We give space to the following, in view of its manifold benefits, both to the city of San Francisco as a grand and much-needed permanent improvement, and to the inhabitants of the city as a health and pleasure resort.

Our illustration plates show the plans as at first contemplated, but new features have since suggested themselves, which will necessitate change and enlargement. The enterprise is under the preliminary control of Dr. G. M. Baronidis, professor of botany. But as soon as the company can complete its organization and incorporation, the entire management will be controlled by a duly elected board of directors. The number of shares will be 10,000, with a par value of $20 per share. It is confidently hoped that the people of this great city will encourage and sustain the enterprise. It will be known as

The Nubian Bathing Palace.

The location of the palace is not yet fully determined: one site proposed being upon the margin of the bay, so as to obtain a constant supply of pure ocean water from each inflowing tide, and the other in a more central part of the city, in which case, a supply of water will be obtained from the company recently organized to introduce salt water into the city by wave or tidal power. (It may not be out of place for us here to remark, that the project to utilize the wave and tidal forces of the bay and ocean is one to which we have given much study and attention during the past fifteen years, and know that it is both possible and practical. We published an original article on this subject in No. 3, volume 1, of the "*quarterly*" series of this journal—1879—and without having any interest, direct or indirect, in the company organized, or any knowledge of their processes, we are confident of the success of the undertaking, provided the company shall have matured the same or some better methods than those settled upon by ourselves.)

THE PROSPECTUS for the bathing palaces sets forth, that it will, in any case, be located within easy reach by several lines of street cars. That it will be the largest, most elegant, and complete bathing establishment in the United States, containing many new features in bathing sciences. That every possible appointment necessary to absolute completeness, including medical attendants, etc., will be introduced.

Bathing, particularly in salt water, as an auxiliary to health, is admitted by all intelligent persons, and is highly recommended by the medical faculty of the world. Two of the special attractions will be the newly patented system of bathing, denominated THE NUBIAN, DRY ATMOSPHERIC, MEDICATED BATHS, and its swimming baths, tempered by a system of heating apparatus, which will regulate the temperature of the water to a degree which will prevent chills and cramps, and afford most pleasant and agreeable ablutions to bathers.

In connection, there will be separate and elegant parlors and waiting-rooms for both ladies and gentlemen, a gymnasium, a restaurant where every delicacy of the season may be obtained, and a splendid *music and entertainment hall*. A description and classification of the baths are given at follows:

No. 1. *The Hot, Dry Atmospheric, Medicated Baths*, constructed in apartments, and so arranged so as to insure the most perfect results.

No. 2. *The Earth-Mud Baths*, constructed upon scientific principles, so far as to compel the infusion of herbs, sulphur, salt water, etc., to an extent which will render them unexcelled by any natural hot or cold mud bath.

No. 3. *Steam Baths*, with herbs and sulphur infusions from three separate boilers.

No. 4. *Hot Herb Baths*, especially adapted to the cure of nervous affections, stiffness of joints, and the restoration of the blood to a healthy circulation.

No. 5. *Hot Sulphur Baths*, surpassing the natural water.

No. 6. *The Electric Baths*, with all the advanced scientific appliances.

No. 7. *The Bran Bath*, said to be peculiarly efficacious in all cases of skin diseases, and in the impartation of clearness to the complexion.

No. 8. *The New Improved Russian Bath*, provided with benches so arranged as to regulate the temperature from 40 to 120 degrees. These and all other baths will be divided into compartments, for the exclusive use of healthy and invalid patients respectively.

No. 9. *Swimming Baths*, for both ladies and gentlemen. The water will be entirely changed by each inflowing tide from the ocean, and so provided with pipes and heating facilities, so as to insure at all times a pleasant and safe temperature of the water to those desiring prolonged baths.

No. 10. *The Genuine Turkish Bath*—Harem style.

No. 11. *Hot Salt-Water Baths.*

No. 12. *Steam Baths.*

The baths, as a whole, purport to supply remedies for nervous afflictions, fevers, chills, erysipelas, rheumatism, ulcers, ademantus, swelled and sore limbs, scald head, psoriasis, liver complaints, diseases of the kidneys, general debility, asthma, neuralgia, paralysis, and to improve the circulation of the blood, strengthen the eyesight, and relieve all the ordinary ailments of humanity.

The establishment will be conducted under exclusively botanical systems. No mercury or other injurious minerals will be used in any connection. It is intended to make it not only a place of pleasure and comfort to patrons, but also a

Health Institution,

Where the afflicted may find relief for almost every malady or disease known to suffering humanity.

The cost of the improvement is not as yet fully determined, and cannot be until one of the two sites in view is selected.

The receipts and profits are set down as follows:

Monthly Rentals from stores and rentable apartments	$500.00
Estimated receipts from the various baths	5,387.50
Total monthly receipts	$5,887.50
Monthly expenses for all purposes	1,050.00
Net monthly earnings	$4,837.50

The above figures, as monthly receipts from the baths, are based upon the following estimates:

No. 1, 10 daily, at	$1.50		$450.00
No. 2, 10	"	1.00	300.00
No. 3, 20	"	.50	300.00
No. 4, 20	"	.50	300.00
No. 5, 20	"	.50	600.00
No. 6, 10	"	2.00	300.00
No. 7, 20	"	.50	300.00
No. 8, 20	"	.50	300.00
No. 9, 25 c. for ladies and gentlemen, and 12½ c. for children			1,375.00
No. 10, 10 persons day at	$1.00		300.00
No. 11, hot salt-water baths			562.50
No. 12, steam baths			300.00
			$5,387.50

Should the central location be determined upon, the salt ocean water will be made to flow in continuously, and the displaced water to pass off into the street sewers, which will cause a perpetual flushing of those into which the discharge is made.

As soon as the enterprise assumes practical shape, perfected plans will be prepared, sufficient for all the purposes indicated.

Presuming the total cost of the enterprise to be $100,000, the results as shown by the foregoing figures will amount to five and three-eighths per cent. upon the investment; or allowing a margin of fifty per cent., the net profits will amount to more than two and one-half per cent. per month.

To Draughtsmen, Students of Architecture, and Architects.

The following suggestion has been made by several members of the profession, which, if entertained by the parties addressed, may be made both interesting and advantageous. The proposition points to the formation of a "School of Designs" at some future if not an early day. The present idea is, that so many as are willing to engage in the contest, prepare plans and designs for building, and submit them in competition upon merit; each set of plans submitted to be accompanied by *one dollar in cash*, with the understanding that the total amount so deposited shall be paid to the party presenting the most meritorious set. But as the matter may be presented at the next meeting of the Architectual Association for discussion, we shall offer no further suggestion at present, other than to say that such a course, or some other of equal or greater feasibility, would tend to stimulate the ambitions and develop the talents of our young men in their preperation for future practice of the profession.

This may be met by some of our less liberally minded brethern with the objection, that there are already too many crowding into the profession, and "the thing is being overdone." Be this as it may, the matter proposed will not increase the number of aspirants for professional honors, and it is not so much the *numbers* as the *qualifications* of those who incline to architectural persuits that affects the general reputation and interests of the profession.

Such young men as have resolved to become architects will do so to the extent of opportunities afforded, whether the present practicing members smile or frown upon their efforts to qualify; and no amount of opposition that may be interposed will deter them from their purpose. Consequently the question arises, whether it will not be the wiser course for the present practicing members to unite in efforts of some sort calculated to instruct and educate those who will "occupy the field," after many of the older heads shall have been "laid low in the dust," in the grand science of architecture. In law, medicine, and the innumerable other arts and sciences, large facilities are provided for beginners, and the learned men of each give freely from the great storehouses of their personal experience and knowledge. Societies are formed, conventions held, lectures delivered, essays read, books published, and every thing calculated to unfold the mysteries of each are resorted to; and this fact is beyond dispute, that those who reveal and teach most, gather and increase the more.

There is certainly no good reason why all this may not be in connection with the architectual profession. Those who have established a good reputation as competent architects cannot be in any degree harmed by the course outlined; but, on the contrary, are more likely to be greatly benefited, as the exercise of generous impulses and right motives tends to enlarge and happify those who take pleasure in them, while the influence of such acts naturally elevates and ennobles the interests involved, and stimulates the better qualities of heart and mind in those who are seeking instruction.

☞ **Subscription price of this journal for 1882 will be $2.00 in advance.**

The Tabor Opera House—Denver.

"THE MOST BEAUTIFUL THEATER IN AMERICA."

As far as we understand the facts of the case, Mr. Edbrooke, of Edbrooke and Burnham, acted as the supervising architect of construction, while the plan and details were more especially the work under the direction of Mr. Burnham. Mr. Burnham is well remembered in this city, as at one time interested in the professional department of this office; and none will question his abilities to produce even so "beautiful" a building as the Tabor Opera House is represented to be.—*Editor.*

We gleam the following from a three-and-one-quarter-column notice of this splendid "Temple of the Muse," in the *Denver Tribune*, Colorado:

"In entering into a description of this fairy-like place—or in attempting to describe its beauties—one must lose sight of lengths, widths, hights, and depths; for, to say that the handsome railings around the balconies were four inches and a half wide, and that the massive cornice were so many feet in thickness, would be much like attempting to describe a poetic creation by giving the dimensions of the objects represented. The interior is so complete, in such perfect harmony, that one almost forgets to be critical. The writer has, therefore, discarded the dry measurements as uninteresting and really unimportant in comparison with the grandeur and poetic beauty of the theater. Let the gentle reader imagine that he has passed through the marble entrance into the dazzlingly bright rotunda, and on into the foyer of the parquet. Although the heavy curtain hanging across the main entrance to the auditorium between two massive mirrors, shuts out the view of the stage and theater itself, yet there is so much of beauty all around one, that he lingers before going further.

"The massiveness and strange beauty of the architecture of the ancients has been revived. It is old, yet new. It is like a realized dream of the grandeur of the great works of a thousand years ago. Architect Edbrooke followed what is known at the "Modified Egyptian Moresque" style, and the decorations are in keeping with the construction As one looks at the high ceiling, with its massive girders forming a graceful square around the dome in the center, from which swings a briliant chandelier; then at the pagoda-like arrangement of the boxes, and at the proscenium arch, beautiful in its simplicity and richness, he finds one thing present in all —reality. There is no tinsel used. There is a solidity, a richness, about everything, that one must examine and realize before he can appreciate. Governor Tabor might have saved $30,000 by using cheap woods in the interior construction of the Opera House, in the place of the highly polished and carved cherry which is to be found in all parts of the building, even where it will never be seen, unless one takes the trouble to peer into nooks to look for it. What attracts attention at once are the novel boxes. Although the theater would be beautiful without them, yet it would lose its chief charm were they constructed in any way other than as they are. History tells of boxes in the olden-time theaters of southern European countries, for people of note, that were much like them; and yet these are so novel, so original, as to not be the counterpart of anything. Not only is originality shown in the construction of the boxes separately, but in the manner in which they are arranged. In most theaters, private boxes are partly on the stage; that is, in the proscenium. They are not at all satisfactory places from which to view the play. Indeed, one cannot see the center of the stage unless he sits in the extreme front of the box. In constructing the boxes as he did in the new Opera House, Architect Edbrooke not only avoided the stereotyped styles, but gained two decided advantages; viz. the boxes are handsomer, more unique, and a better view of the stage can be had from them then from the old-styled proscenium boxes; and as they are located in the auditorium, they naturally shorten the sides of the galleries, which, in most theaters extend to the proscenium, making it impossible for persons occupying back seats on the sides to see the stage. It was a happy thought that suggested a shortening of the galleries, and the construction of the boxes in this novel style. The boxes are so peculiar in appearance, that it is difficult to give one a correct idea of them. There are three on either side of the theater, rising one above the other. They seem to be entirely distinct from the walls of the building.

"The Tabor Grand has an advantage over nearly every theater in the country, in that, it is not nrcessary to illuminate it in the daytime, if so desired. Light is admitted through two large windows of cathedral stained glass, one on the north side of the building, and the other on the east side, up in the amphitheater. It might be stated here that there was an object in so constructing the Opera House that it would not need to be made light by artificial means in the daytime. Conventions and meetings may not only be held there, but it is said that Governor Tabor has a plan for uniting the stage more closely with the church, which may bring the Opera House into use in the daytime. The Governor's idea is to throw the house open on Sunday, and invite the different divines of the city to preach there in the afternoon. The religious services in McVicker's theater in Chicago have proven a popular Sunday afternoon feature in that city for some time past, and there is no doubt that like services would be hailed with real pleasure in Denver.

"There is nothing cheap in the building. Indeed, expensive woods have been used where cheaper material would have answered the same purpose. This fact is the more wonderful and the more commendable, when the disposition of this Western country to make a false show is considered. Even in the remote corners of the ceiling, where stencil work could not have been detected from frescoing, the latter was done with as much care as it had been in the most conspicuous places in the theater.

"There is, perhaps, no better criterion for one to base his judgment of the character of the work in the interior of the new Opera House upon, both as to solidity, richness, and beauty, than the double columns of cherry that run from the floor of orchestra to the cornice in the cove, forming a support, apparently, for the heavy girders that cross the ceiling. These pillars, it might have been stated in connection with the description of the proscenium, add greatly to the beauty of the arch. To look at them, one would think these massive yet powerfull pillars were carved from solid pieces of wood, so cleverly has the mechanic put them together. They are of cherry, highly polished, and almost without ornament, except near the top, where they join the cornice.

"About half-way up the pillars are gas fixtures of the most elegant and graceful designs—rich, yet not gaudy, being of delicately-formed and highly polished brass work. At the top of the pillars there is a gilded carving, which is a pleasant relief to the long, unbroken column of dead color.

"About all that remains to be said, is to tell by whom this beautiful Temple of the Muses was designed and decorated. The architects were W. J. Edbrooke and F. P. Burnham, who also designed the Tabor block. Mr. Edbrooke has been on the scene of the construction of the building almost daily since the first stone was laid. The Opera House building and the handsome theater in it form one of the broadest pieces of architure in the West, and almost the perfection of art has been obtained at every point. It is said that one hundred thousand dollars have been spent in the fitting up of the interior of the theater after the walls were plastered, and nearly half of this fortune was expended on the hard woods in which the interior is finished.

"The decorations were made by J. B. Sullivan & Brother, of Chicago. Mr. J. B. Sullivan himself having been in Denver superintending the work since May last. Although this firm have done many artistic pieces of work in the theaters of Chicago, and in churches and in lodge rooms all over the country, and right here in Colorado, for that matter, having just completed the decorations of the handsome Opera House at Colorado Springs, yet never before, so Mr. Sullivan says, have they attained the perfection that is to be found in the work just finished.

"The stage and its arrangements were built under the direction of John C. Alexander, one of the best stage carpenters in the country. He has been in Denver and at the theater superintending the work since February last. To him the credit is largely due that the stage of the Tabor Opera House is the most perfect in its appointment of any in the country."

In our January, 1882, issue we shall present our readers with a handsome cut of this beautiful edifice.

What is an Inch of Rain?

An inch of rain is that quantity which, falling upon a level surface, and not absorbed or allowed to run off, would stand one inch in depth. The amount of water falling on one acre of land when the rainfall is one inch would astonish any one who has given no thought to the subject. On each square foot of surface there would be 144 cubic inches, and on one acre, which contains 43,600 square feet, would be 6,272,640 cubic inches, which, reduced to imperial gallons, each containing ten pounds avoirdupois, would be 22,623 gallons, or 226,230 pounds, something more than 113 tons weight to the acre. The average annual rainfall in this locality approximates 50 inches; consequently, each acre receives 5,655$\frac{3}{4}$ tons weight of water in a year. This amount of water would require a train of 565 freight cars to carry it. If one had to water a 640-acre farm at this rate, it would require figures like those of the distance to the nearest fixed star.—*Kansas City Review of Science.*

The Redwood of California.

We notice that many of our exchanges have recently contained articles in reference to the redwood of this coast, which gives only a partially correct and limited account and description of that material. The "indestructible" statement is imaginary. We have in preparation a series of articles which will appear in the earlier numbers of our 1882 volume, in which we propose to give all the facts bearing upon the subject, and shall avail ourselves of the advantages of the thirty years and over of personal, practical experiences in the use of redwood for building and innumerable other purposes. We hope our contemporaries everywhere will reserve further statements in reference to this matter until our articles appear, in which they may find all the substantial facts, and some which may be new and interesting.

In house-painting, graining in imitation of wood or marble is to be condemned, on the ground that all shams are despicable. Besides, the result achieved is less pleasurable as an object to look upon than would be the natural wood, however common its quality, if it were properly filled and oiled. Shams of all kinds are to be avoided, and as graining, however little it may succeed in its aim, is intended to deceive, it is a sham, and therefore should never be countenanced by persons of taste.—*National Car-Builder.*

Secret Remedies.

Secret remedies are undoubtedly among the greatest evils of modern times. Not only is secrecy the effective cloak of pure quackery, but the paying sale of these nostrums can be effected only through the most extensive advertising of a peculiar kind—intended to lead the reader to believe that the inventor of the "great discovery" is an honest as well as able physician; that he (the reader) himself is certainly more or less afflicted with some one of the ills described in the advertisement, and that to try the preparation offered as *the* remedy best adapted to symptoms which he is suddenly convinced that he notices in himself, cannot possibly do any harm, and is a great deal cheaper than to go to a "regular" physician. If there is any really active ingredient in the preparation at all, it is much more apt to do serious injury than good, for it would of course be mere accident if the diagnosis and treatment, both determined by the patient himself with the aid of a random guide, should prove nearly correct. The advertisement or description of a secret remedy usually enumerates a sufficient array of diseases and especially symptoms to be sure to hit the case of any and every reader who has the slightest inclination to think that his "system" is "not right." Now, were the ingredients of the "cure" named, the confidence of the patient would perhaps vanish at once, or he might go so far as to actually make some inquiry into the matter, and change his mind; or the gross absurdities of the claims of the vendor might be exposed by intelligent physicians. But so long as the composition of the "remedy" is not published by the inventor or manufacturer, it is almost certain to remain at least partially a secret, if, as is generally the case, it is a complete mixture of organic substances; for the character and composition of such mixtures cannot possibly be fully determined. While the presence of certain substances in such preparations may be infallibly demonstrated, and even the quantity of those ingredients determined, yet there may be other and very active constituents in the mixture which elude observation entirely, or the character of which can only be guessed at. As a rule, however, it would be extremely unsafe for a vendor of a quack nostrum to make a false statement concerning the composition of his *cure-all*; for while it may be impossible to make a complete quantitative analysis of an unknown mixture so as to show what the real constituents and their proportions are, it would be a comparatively easy matter in every case to expose any material deception.—*Sanitary Engineer.*

Can a Patent be Sold by Sheriff for Debt, Like Other Property?

This question is frequently asked, and heretofore, in the absence of any definite decisions of the courts, we have been accustomed, for many years, to answer that an ordinary sheriff's sale of a patent would be invalid; while an assignment of the patent by the owner would hold good and carry title against such sheriff's sale. Further, we have held that the proper way for a creditor to obtain title to a debtor's patent is to procure an order from a competent court, compelling the debtor to sign a deed of conveyance.

This subject has lately received the attention of two separate courts, and we will here present the substance of both decisions.

The first case was in the Supreme Court of the District of Columbia, Murray *vs.* Ager, decided January, 1881. Murray, having recovered a judgment of $2,164 against Ager, who was the patentee of certain grain-dressing inventions, represented to the court that the only means he had to realize on his judgment was from the patent. Murray accordingly asked the court for an order compelling Ager to execute such assignment of patents to the purchaser as might be necessary to carry the title, in conformity with the patent laws.

The defendant admitted the judgment and ownership of the patents, but claimed that the latter were not subject to seizure and sale under the proceedings. The lower court took the same view, and dismissed the bill; but on appeal, the Supreme Court of the District reversed the decision of the lower court, and, in a very interesting and exhaustive decision, held substantially as follows:

"A court of equity may direct the sale of the interest of an inventor in his patent in order to satisfy a judgment obtained against him in a court of law, the writ of execution having been returned *nulla bona*, and for that purpose will require the patentee to make an assignment of the patent, as provided in Section 4,898 of the Revised Statutes of the United States; and in default of such assignment within a limited time, will appoint a trustee, with authority to execute the same."

The second case occurred in the Supreme Court of California, Pacific Bank *vs.* Robinson, decided April 19th, 1881.

The court held that "a patent right issued under the laws of the United States may be required to be assigned to a receiver, under proceedings supplementary to execution, who may sell the same and apply the proceeds in satisfaction of judgment."

Thus, although an ordinary sheriff's sale of a debtor's patent right would be good for nothing, it appears from the foregoing cases, that, when proper supplementary proceedings are taken, the courts may compel the debtor to make an assignment of his patent for the benefit of his creditors, or appoint a receiver for the patent, whose conveyance to the purchaser would be good.—*Scientific American.*

Ten Cents Per Day.

In a recent lecture before the University of California, the Hon. J. F. Swift, a member of the late treaty commission to China, stated that the boats or barges were towed from one certain point to another by Chinese; that it required *four days* to perform the trip, and that the poor creatures who were made to do the work, which in our own happy country has never been done by less than horse or mule power, received for their *four days' services* the sum of forty cents, or TEN CENTS PER DAY, out of which the virtual slaves were required to defray their individual expenses of food, clothing, etc.

This is the race of beings whose labor some are seeking to introduce, and which itself is striving to gain a position in competition with white labor in the United States. In some operations, the rates of pay in China is doubtless greater; but allowing the same ratio of difference as exist between the compensation of mechanics, artisans, and common labor in our own country, and the result would be about TWENTY CENTS PER DAY, or less, for Chinese mechanics.

Can it be that in the near future, or ever, a race of people thus demoralized and degraded, not only in respect to their rights as human beings, but in all social and moral aspects, shall swarm to this goodly land and drive out, or crush down to the lowest depths of poverty and degradation, those of our own race and blood who are compelled to support themselves and their loved ones by daily toil?

Think of it, workingmen of America, and weigh the issues well! The flow of Chinese immigration must be checked—substantially stopped—or before its torrentlike coming every mechanical and manufacturing interest of the country in white hands must and will be made to tremble. For as they gain strength by additional numbers, and learn American arts and devices more perfectly, they will make their power felt, both in reference to labor itself, and the management of great commercial, manufacturing, agricultural, and mechanical interests: for they are naturally smart and quick to learn; and if we, as a people, consent to their coming, they will assuredly become aggressive, and wrest from us the blessings which have made us a great and happy nation.

Sanitary Inspection of Schools.

We wish our school boards would read and act on an editorial in the Boston *Medical and Surgical Journal*, on "The Sanitary Inspection of Schools." To the breathing over and over of "the sewage of the atmosphere," or, in other words, of air vitiated by human lungs and bodies, together with innutrition, the *Journal* attributes a high degree of the responsibility for the 2,074 deaths the past year in Massachusetts, from pulmonary diseases, between the ages of five and fifteen alone, or during the school years. Schools propagate contagious diseases, (and here it will be remembered that in their attempts to check the spread of them, the efforts of the Brooklyn Board of Health were first directed to the schools), and their insufficient ventilation and bad sanitary condition often "deteriorate the constitution to the point of establishing diseases which sometimes produce death, sometimes a lasting invalidism—making the individuals wretched—and sometimes simply enfeeble health, which imparts weakened constitutions to children and children's children."

In this respect, the experience of Brussels is valuable. In that city, in 1874, five physicians were appointed to the sole work of inspecting schools. Their investigation extended to faults in construction, heating, ventilating, size of rooms, windows, kind of desks, etc., temperature, and daily condition of the air, and causes tending to vitiate it; and health conditions arising out of school routine, as instruction, exercise, gymnastics, etc., care of eyes, length of recitations and time of study, means of regulation of infectious diseases, with vaccination, directions for the training of children whose health was below the average. The result was, that no one of the infectious diseases reached the hight of an epidemic in Brussels since the inspection began; while other cities of Belgium suffered severely. The general health of the pupils has also improved, and scholars have more nearly the training suited to them individually.—*Sanitary Engineer.*

Salt as a Prophylactic in Diphtheria.

In a paper read at the Medical Society of Victoria, Australia, Dr. Day stated that, having for many years regarded diphtheria, in its early stage, as a purely local affection, characterized by a marked tendency to take on putrefactive decomposition, he has trusted most to the free and constant application of antiseptics; and when their employment has been adopted from the first, and been combined with judicious alimentation, he has seldom seen blood-poisoning ensue. In consequence of the great power which salt possesses in preventing the putrefactive decomposition of meat and other organic matter, Dr. Day has often prescribed for diphtheric patients living far away from medical aid the frequent use of a gargle composed of a tablespoonful or more of salt dissolved in a tumbler of water, giving children who cannot gargle a teaspoonful or two to drink occasionally. Adults to use the gargle as a prophylactic three or four times a day.—*Kansas City Review of Science.*

☞ **Subscription price of this journal for 1882 will be $2.00 in advance.**

Proper Size of Vent Pipes to Traps.

HARTFORD, Nov. 2, 1881.

TO THE EDITOR OF THE SANITARY ENGINEER:

In the plan of plumbing adopted by the New York Board of Health, Provision No. 9 requires that every trap be protected from syphonage by a special pipe not less than one and one-half inches in diameter. It seems to me that a pipe of this size is unnecessarily large, as the waste pipes from basins and bath tubs are seldom over one and one-quarter, or one and one-half inches in diameter. If a ventilating pipe two inches in diameter is sufficient to protect a four-inch or larger water-closet trap, why will not a half or three-quarter inch vent answer for a basin or bath trap? If the waste pipe from bath tub or basin empties into a vertical line of soil pipe at a point above any other fixture, can there be any question as to the efficiency of the small vent.

CONNECTICUT.

[The necessity of providing for air pipes of no less size than that of the waste pipes arises from two causes. First, the fact that air will not move through a pipe without friction, and this form of resistance increases very rapidly as the size of the pipe diminishes. For instance, suppose we wish to furnish air at a given rate of discharge, say one tenth of a cubic foot per second, and we provide a pipe of one inch diameter to supply it. The section of the inside of this pipe is .785 square inches, and the required velocity would be $\frac{172.8}{0.785}$ inches or 18½ feet per second. Now suppose the diameter of the pipe to be reduced to one-half, from one inch to one-half an inch. Its interior section would be reduced *fourfold*, viz., to 0.19 square inches, and the velocity of the air current would therefore be increased fourfold, viz., to 74 feet per second, or fifty miles an hour. But friction increases very nearly with the square of the velocity, so that we encounter four times four, or *sixteen times* as much friction by forcing the same quantity of air through the ½ inch pipe as was incurred by using the one-inch pipe.

Just what this friction really is in figures may be a difficult point to determine, but we know it increases *pro rata* with the length of pipe, and is sensibly aggravated, too, by changes of direction.

Actual experiment has shown, when ordinary lengths are used, that the smaller sizes of pipe would be insufficient to prevent syphoning of traps for the above reasons. But still another reason exists in the liability of collecting frost or ice from condensation of vapor inside the pipe near its exposed end. So we think the regulations of the New York Board of Health are quite justifiable in this particular, and should be enforced.]—*Sanitary Engineer.*

Is there Life in other Planets?

The question, so often mooted of late, appears to be answered in the affirmative by the discoveries of the eminent geologist, Dr. Hahn. In meteoric stones, and especially in the class called chondrites, on account of the peculiar spherical enclosures found in them, he has recently observed an entire series of organic remains. By a laborous process of grinding down and polishing these fragments, he succeeded in producing a large number of thin laminæ, or delicate stone shavings, which he subjected to a careful series of investigations under the most powerful microscopes. He has recently published a book on this subject, containing, on thirty-two plates, more than one hundred representations of these laminæ of meteorites, every one of which contains different forms and figures, which Dr. Hahn positively identifies, *not as mineralogical* but as *organic*, and, in fact, as *zoological formations* belonging to the different classes of *sponges, corals,* and *crinoids.* These pictures, which have been reproduced from the original laminæ by photography, without any alterations or additions by a draughtsman, must cause great surprise to every geologist and paleontologist who will at once recognize the structure of well-known coral types on several of the plates. The majority of the meteorites containing these forms are part of the celebrated great meteoric fall of Knyahinya in Hungary, which took place on the 9th of June, 1866.

How to Obtain this Journal Free of Cost.

To any of our subscribers or other parties who will forward to this office four new names in addition to their own, and *eight dollars in cash* or by postal money order, bank check, or other circulating medium, we will send this journal for the year 1882, and a copy of the *Steel Square and its Uses*, free of charge. Single subscription price, $2.00 per annum; steel square and its uses, 75 cents.

Or we will furnish *ten copies* for one year, sent to separate addresses, for *fifteen dollars* to the parties securing the ten new names; in addition to which we will send or give a copy of *Palliser's Useful Details*, price $3.00, or either *two* of the following named books: "Palliser's Model Homes," "100 Useful Designs," "Stepping-stone to Architecture," "Practical Draughtsman," "Proportions," or "Saw Filing."

Our object in making liberal offers of this kind is to secure at once 20,000 CASH SUBSCRIBERS, which we can do if those whose interests have been and will be specially advanced by the greater success of this journal will only take the matter in hand, and work for the desired result. To this end, there are two strong inducements presented: first, in the premiums offered, which in themselves will yield a recompense for the services required; and second, the accomplishment of the object sought will insure the publication of a journal in Califoania which shall not be excelled by any other published in the United States. Give us the support asked for, and in return we will produce a journal of superior excellence.

PRAISE AND COMMENDATIONS have come to us from all quarters, personal and journalistic, for what we have thus far accomplished; but the past is but a mere index and outline of the future, when our subscription list shall contain twenty thousand cash subscribers.

We are earnest in this matter, and hope that our patrons will not weary at the frequent references made to it, as we sincerely and honestly contemplate a great publication work in San Francisco, and hope to enlist that general interest in our behalf, which will speedily enable the accomplishment of the desired object.

We have thus far in nothing misled or deceived; and certainly, after being so well sus- as we have been, it would be moral insanity on our part to attempt deception. Our motto has been and shall ever be, onward and upward, with strong confidence and trust that those whose interest we serve,

ARCHITECTS, MECHANICS, AND OWNERS OF REAL ESTATE,

will extend that sustaining and support which will enable the perfecting of our highest ambitions.

OUR EASTERN AND FOREIGN PATRONS,

in like manner, will reap a rich harvest from the accomplishment of the object in view, as there are vast fields of information and interest thus far unexplored in California, which will be entered, and their hidden treasures brought forth in due time. The Pacific coast is prolific, not only in gold and other precious metals, cereals, vines, fruits, and other and similar products, but also in innumerable connections, interesting to the mechanical, manufacturing, and scientific world. Our appeal is, therefore, not of small or mean pretense, but based upon broad and comprehensive views and purposes, challenging the hearty aid and encouragement of every individual seeking or desiring to attain increased knowledge and information.

ALL ALONE.

Thus far the work has been prosecuted almost entirely single-handed. But few have assisted in furnishing matter for these columns, but these few have been duly accredited; and our own pen and brain have produced all not otherwise ascribed. But as there are able writers within reach, we shall, as soon as the greater prosperity sought is attained, secure a corps of contributors upon various subjects, with whose assistance the columns of this journal will be made bright and intensely interesting to every seacher after that which is edifying and instructive.

Crooked Things.

Because nature has crooked the channels through which rivers run, and rivulets and mountain streams pursue their flowing to the seas, furnishes no barrier to men making them straight, when good purposes can be served by so doing. Neither is the natural crookedness in mankind a sufficient justification for continued perverseness and submission to wrong impulses. If there was nothing irregular or uneven in nature or humanity, if all was straight, smooth, and well shapen, there would be but little for man to do but live on in inertness, and enjoy the things made perfect to his hand by Him who created all things well. But the order of things is differently designed, and there is a great and noble work for men to perform, and they only accomplish a good and worthy part in life who aid in correcting in themselves and others that which needs and may be corrected, and beautifying where crudeness and irregularities exist. Trees, shrubs, and flowers are made the more ornamental and beautiful, by the trimming and training employed in their culture; and so may men trim and train their thoughts and acts as to render themselves ornaments in the great garden of life. Those who climb the higher, obtain the better view of things below, and from the mountain's top may see a thousand beautiful things not seen by those who linger in the valleys below.

Renewal and Payment of Subscriptions.

We trust that every present subscriber will at once renew his subscription, and each induce at least five others who have not, to subscribe. We mean progression and improvement in our publication work, and hope our friends will sustain us handsomely. Send $2 for 1882. Remittances by postal money-order, bank-check, or any other convenient means will be duly acknowledged. If postal stamps, send the two-cent denomination. We want a circulation of not less than

20,000 PAYING SUBSCRIBERS.

BOUND VOLUMES FOR 1881

Will be ready for delivery by the 1st of January, 1882, at $2.50. We have on hand a few copies for 1880, and will forward either or both to any address?

Discovery of Extensive Pine Forests.

The recent exploration party of Colonel Mercer up the Spanish River, in the province of Ontario, is said to have discovered vast pine forests, containing upward of 24,000,000,000 feet of a superior quality of pine lumber, with facilities for getting it to market equal to the best.—*Scientific American.*

A Growing Evil Among Workmen.

Far be it from us even to intimate an unworthy reflection, or seek to cast a single reproach upon the thousands of good, true, and worthy mechanics, artisans, and laboring men, who perform diligently the daily toils of life. But we have noticed the fact, that, in San Francisco at least, many of our mechanics and workingmen are inclined to hurtful indulgences and practices. We have repeatedly seen some of them strongly under the influence of intoxicating beverages during working-hours, and the lager-beer pitcher or *pail* is a frequent thing in buildings in progress and in workshops. This state of things has increased with the reduction of beer to "five cents a glass," and thousands go home with unsteady step, after a hard day's work, from the effects of too much yielding to the baneful practice. The evil is not only individually great, but damaging in other directions, aside from the want and unhappiness which it causes in the home circle. When men are "full," the hand becomes unsteady, and a great amount of poor workmanship is turned out by positively good mechanics, while under the debasing influence. We have often noticed a marked difference in the character of work done in buildings: the afternoon work being greatly slighted, if not emphatically botched, as compared with the morning operations. This is particularly noticeable in plastering work, and we have personally frequently been compelled to reject and condemn "white coat finishes" put on after four o'clock P. M.

It is not pleasant to contemplate the fact hinted at, and we earnestly interpose the entreaty that the working-men of San Francisco pause and contemplate the results which must flow from the pernicious habit. It is wholly unnecessary in any sense, and certainly condemnable from every point of view, more especially during working-hours, when steady hands and uncloudedd intellects are absolutely a prerequisite to good work and faithful service. Beside the effect produced for the time being, indulgence in the use of intoxicating beverages is cancer-like. When it once grows into a daily habit, and finds root in the moral sensibilities, the cure becomes difficult. A breaking away before the evil practice becomes established is an easy matter, when the strong will of man be determined. But, like all other wrong practices, when tolerated and permitted to gain an ascendancy, it most generally asserts a positive mastery, which subjects the individual to the slavery of submission, too frequently terminating with a terrible ending.

Master mechanics also should interpose their authority, and forbid the use of strong drink during working-hours. They may, if they will, do much in this direction, by giving preference always to men of strictly temperate habits, and employing those who *will* drink, only when compelled to do so by force of circumstances. The master cannot compel his employees to forego the use of strong drink, but they can and should discharge from service every workman who insists upon its use during the hours of labor.

Two-cent Stamps.

We would particularly call the attention of those sending us stamps, either for copies of the CALIFORNIA ARCHITECT AND BUILDING REVIEW, or for the payment of books, to send us the amount in TWO-CENT stamps. We have now a plethora of three and six cent stamps on hand, and only desire stamps of the smaller denomination, either ONE or TWO cent.

Health of Memphis.

Memphis is an unhealthy city, having had for the last six months a death-rate more than double what she ought to have, with a proportionate increate in the number of sick.

The causes of this seem to be mainly a foul water supply, and insufficient drainage. At the time of the sanitary survey of Memphis, the water was declared to be bad by the commission. Nothing has been done to improve the water supply. On the contrary, the recommendations of the commission as to the place for outlet of the sewerage, and the importance of keeping the bayou free from excreta, have been lost sight of, and it seems probable that a certain amount of the sewage of the city is being returned to its unfortunate inhabitants through the water works.

Sewers have been constructed for a large part of the city, but the subsoil drainage system, which was insisted on as an essential part of the system of sewerage agreed upon, has not been introduced. The Memphis *Avalanche* says truly: "It is a reasonable proposition, that so long as Bayou Gayoso is an open sewer, and Wolf Creek conglomerate is furnished for drinking water, Memphis will continue to be an unhealthy city. It is clear that a great mistake has been made in calling a halt in the work of sanitary reform before that work was half done. It should have been continued at any cost. It is cheaper to expend a million dollars or so in securing good water, and cleaning out the bayou, than it is to go on from year to year burying twice as many people as there should be buried. And there can be no considerable growth for Memphis until it can show a better health record." In all of which we believe the *Avalanche* to be entirely right.—*Sanitary Engineer.*

The Sanitary Engineer.

The announcement is made in the December number of the *Sanitary Engineer*, that hereafter it will be issued weekly. We are heartily glad that the showers of prosperity have fallen so copiously upon this—one of the very best technical journals of the United States—as to enable its proprietors to made the advance proposed. There is no journal published in the English language upon sanitary matters more worthy of patronage and support, and none—ourselves excepted—that we more cordially recommend to public favor.

The Pneumatic Clock.

This, being a purely California invention, should enjoy favor equal to its great merits from all Californians; and we can recommend it to our Eastern and distant readers as a time-keeping device of superior excellence. We should be pleased to see the demand so largely increased for this ingenious clock invention, as to require a large establishment erected for its manufacture, and another great industry established, giving employment to hundreds of skillful workmen.

College graduates in mechanical engineering are on the increase, and similarly institutes for conferring this or analogous titles. This is a sign of progress, and one which promises excellent results, providing that due care be taken that the graduates have acquired the best attainable practical and theoretical education. A graduate of a technological school cannot be expected to be a mechanical engineer in the highest sense of the term; but he should have such a standing and attainments, which will, on the theory of probabilities, cause him, within a few years of further experience, to occupy a position of usefulness in his profession. The danger to the giving of the title, at the present time, is the lack of uniformity in preparations and acquirements in different institutions. The graduates of some institutions are all deserving of the title in the sense here used; while other institutions have too low a standard to make it desirable to give the title to any of its graduates. The former college graduates will suffer by the standing of the latter, as well as will the profession and civilization at large. There is a remedy. If a final examination were all of the same desirable standard, every institution desirous to give the title of mechanical engineer to its graduates would have to work up to this. Such a standard could be defined by the American Society of Mechanical Engineers, if they would take the matter in hand. A committee of that society might be made to act as an engineering board; and we feel sure that the best institutions would be glad to co-operate with such a board, abide by its decisions, and have the standing of its graduates such as to enable them to comply with the demands. Those institutions which could not come up to the requirements of the board would continue as heretofore, but should be deprived of the right of giving to their graduates a title which they do not deserve. The relation, too, between the mechanical engineers of experience and the young men entering the profession would become of the most pleasant and satisfactory nature; and altogether we imagine a desirable end would be gained.—*American Engineer.*

The Destroyer of the Spruce-Trees.

Maine's lumbermen—and therefore a large part of the rest of her citizens—are much disturbed by the destructive insects which are killing the spruce-trees, not only in that State, but in the adjacent British Provinces. The pine has lost its pre-eminence, and the spruce was getting in a position to be the representative tree; but the *Urocerus albieconus*—if the thing has been correctly identified—the Augusta *Journal* says, is killing off the spruce faster than the lumbermen could have done it, and greatly to their detriment. The white-horned *Urocerus*—for that is what his name means—is about an inch long, and with wings which spread to two inches. They are as likely to destroy the pines into which they bore as the spruces, so far as the entomologists know. These insects are very prolific, and not at all uncommon. In England it has been often noticed and recorded, but there it was injurious only to ornamental trees, not to those on which so much depends in a business way, and in whose preservation so many people are interested, as the spruce forests of the Northeast. The prospect seems to be, that things will go from bad to worse. Unless some smaller insect comes to the front, and destroys the eggs of the *Urocerus*, it is hard to see what is going to save our spruce-trees.—*Illustrated Scientific News.*

Substitute for Sash Cords.

We refer to the advertisement of Mr. Thos. Morton, New York, not for the purpose of puffing an advertiser, but because there are but few things in connection with house construction, which "give out" more quickly than the ordinary rope sash cords, particulurly when plate glass is used. We speak from personal experience, both as to the non-lasting of the rope, and the excellence of the Champion and Cable cords offered by the New York firm. They work splendidly, and the material of which they are made precludes all question as to durability.

Market Reports.

LUMBER.—We present the amended price list as adopted by the Lumber Association, November 10th. Pine lumber is scarce. There is not a yard in town that has a full supply of all the different lengths. There will be a very large demand to fill contracts shortly, to go "ahead."

Receipts since January 1st:

Lumber	186,709,830
Shingles	71,566,416
Laths	13,392,851

A correct price list of lumber will be found below:

Pine.

Common Rough, up to 40 feet, per M feet			$22 50
"	41 to 50	" "	23 50
"	51 to 60	" "	24 50
"	61 to 70	" "	26 50
"	71 to 80	" "	28 50
Refuse Rough		"	18 50
Common Rough, sized with planer $2 additional on above rates, per M feet.			
No. 1 Flooring, 6 inches and over,		"	32 50
" 4 " and under, and 1¼x4 and 1¼x6			35 00
Flooring and Stepping			
Rough Clear for Flooring, $1 less than above rates.			
Second quality Flooring and Stepping		per M feet	27 50
Ship Plank, Rough		"	28 50
" Planed 1 side		"	32 50
" " 2 sides		"	35 00
Deck Plank, Rough		"	33 50
" Dressed		"	37 50
Laths		per M	3 75
Wool Slats		"	10 00
Shakes		"	12 00
Redwood Posts		per piece	17½

Redwood.

Rough Merchantable	per M feet	22 50
" Refuse	"	18 50
Surface No. 1	"	35 00
" 1 x 6	"	32 50
" No. 2	"	27 50
Rustic, No. 1, 1 x 8	"	32 50
" No. 1, 1 x 10	"	35 00
" No. 2	"	30 00
" Under 10 feet	"	30 00
T. & G., 1¼ x 4 and 1¼ x 6	"	35 00
" 6 in. 12 ft. and over	"	32 50
" " 7 to 11 feet	"	30 00
" " under 7 feet	"	27 50
" " No. 2	"	27 50
T. & G., Beaded, 12 feet and over	"	35 00
" " 7 to 11 feet	"	30 00
" " under 7 feet	"	27 50
Half-inch Surface	"	30 00
Pickets, Fancy	"	27 50
" Rough, Pointed	"	20 00
" " Square	"	17 50
Siding, ½ inch	per M	25 00
Shingles	"	2 50
Battens, ½ inch, lineal feet	"	1c

NAILS.—4d and 6d are very scarce. There has been an unusual large demand for these two sizes during the year. Nails of all sizes, however, are scarce. Below will be found a correct price list.

Since January we have imported 189,140 kegs.

10 to 60 pennies, are quoted at		$4 25
8	"	4 50
6	"	4 75
5 and 4	"	5 25
4 and 5 pennies, brad heads, at		5 50
6	"	5 75
8	"	6 00
10 and upward	"	5 25
3 penny fines	"	7 75

PAINTS.—The PIONEER is the only brand quoted, as its excellent qualities, and the fact that it is strictly a home production, has about driven all other brands out of market.

We quote Pioneer White Lead 8½ cts. per lb.

Building Intelligence.

In another column will be found a summary of building improvements in San Francisco for the past year. There is shown a very remarkable contrast between this year and the preceding one. It will well repay a careful perusal.

It is pleasing to notice the joyous feelings with which the coming holidays are regarded by the working classes from those of former years, when dullness reigned supreme in all lines of mechanical operations.

Any one who has noticed our course during the past year will have observed that we have been studiously careful not to report any building until the contract has been signed. This has been necessary in order to keep up to the standard marked out for this journal at its inception. From time to time, in the daily papers, reports of buildings about to be erected have been given; and in numerous instances no foundation whatever was had, except the street rumor, "I heard so and so."

It is certain that 1882 will witness a large increase in buildings, both in number and amount, over this year. The plans for Blythe's new building are about ready, and work will be commenced in January. Estimated cost about $500,000. Lent's new building will cost not far from $100,000. Negotiations are in progress for several new buildings on Market street. Before the year 1882 is ended, it is probable that the new church for the St. Mary's congregation will have been commenced. Large improvements are contemplated at the Cliff House. We have been personally informed of numerous improvements that will take place at the "Mission." It is hoped that those having the Odd Fellows' new building in charge will help the building boom of 1882 ahead. Much has been said about a one-half-million-dollar building on the property where Platt's Hall now stands.

We have mentioned the above just to show the "prospect" for the coming year. We might enumerate many buildings, but we will only do so when we KNOW the buildings are really "going ahead."

SAN FRANCISCO.

Three-story frame dwelling, with brick basement, on Hayes, between Octavia and Laguna. Owner, Chas. Dietle; architect, H. Geilfuss; contractor, H. Thom Wohrden; cost, $13,500.

Two-story frame dwelling, on corner Post and Scott. Owner, Fred Hund; architect H. Geilfuss; contractor, Sylvester Grant; cost, $5,500.

Two two-story frame dwellings on Taylor, near Ellis, and one on Ellis, near Taylor. Owner, J. Morton; architects, Kenitzer & Raun; contractor, Chris. Chisholm; cost, $13,500.

Two two-story frame dwellings, on Van Ness Avenue, between Hayes and Grove. Owner, P. R. Schmidt; architect, P. R. Schmidt; contractor, W. Pluns; cost, about $10,000.

Six two-story frame dwellings on corner of Larkin and Sacramento. Owner, H. Hinkle; days' work; cost, about $5,000 each.

Four one-story frame dwellings, with basements, on Lyon, near California. Owners, G. and H. Hinkle; days' work; cost, about $2,000 each.

Two two-story and basement dwellings on Castro, near Market. Owner, M. J. Lovell; days' work; cost, about $5,000.

Brick building on Jessie, between Third and Fourth, to be used by the Electric Light Company. Contractor, Jos. Thornhill; superintendent, J. Drury; architects, Curlett & Eisen; cost, about $8,000.

Two-story frame building for store and dwelling, on Howard, between Eighteeth and Nineteenth. Owner, Mr. Hayes; architect, Chas. Geddes; contractor, W. M. Fletcher; cost, $3,000.

Two-story frame dwelling on Nineteenth, near Mission. Owner, —— Wheeland; cost, about $2,000.

Repairs and alterations to house 1356 Post. Owner, S. Newman; architects, Wolfe & Son; contractor, T. A. Moar; cost, about $1,500.

Two-story frame dwelling on Lapidge, between Eighteenth and Nineteenth. Owner, J. Perry; contractor, J. McCann; architects, Hoffmann & Curtis; cost, $2,600.

One-story cottage on Noe, between Fifteenth and Sixteenth. Owner, Chas. Hansen; architect, W. Winterhalter; contractor, H. Meyn; cost, about, $1,000.

Alterations and additions to building on corner of Powell and Ellis. Owner, I. Wormser; architects, Wright & Sanders; contractor, —— Moffatt.

Remodeling house corner of First and Harrison. Owner, Joseph Goetz; architect, T. J. Welsh; contractor, J. L. Binet; cost, $2,450.

Two-story building corner of Mission and Eighth. Owner, D. J. Oliver; architect, T. J. Welsh; contractor, J. L. Binet; cost, about $5,500.

Corner of Vallejo and Webster, repairs to conservatory. Owner, Dr. Brigham; contractors, Moore Bros.; cost, about $600.

Alterations to building 615 and 617 Dupont. Days' work; T. J. Welsh, architect.

Alterations to building on Post, near Laguna. Owner, Chas. Gottschalk; architects, Curlett & Eisen; days' work.

Rebuilding house No. 351 First. Owner, Huntington; contractor, R. P. Hurlburt; cost, $2,650.

Store-front and offices on Fremont, near Mission. Owner, Reynolds & Rix; contractor, R. P. Hurlburt; cost, $750.

One-story frame building on Langdon, near Fourteenth. Owner, R. Cummings; contractor, J. W. Wilcox; cost, $900.

Two-story frame building, with basement, on Church, between Twenty-first and Twenty-second. Owner and builder, F. G. Kleebauer; cost, $2,000.

Additions to sheds for Central Pacific Railroad at foot of Market.

One-story frame and brick building on Spear, near Market. Owner, A. Carrigan.

Four tenement houses on Stevenson, between Eighteenth and Nineteenth. Owner, S. McDevitt; architects, Hoffman & Curtis.

Repairs and additions to building on S. E. corner of Market and Main. Architects, Hoffman & Curtis.

SACRAMENTO.

Alterations to building on corner of Second and J streets. Owner, A. Gallatin; architect, —— Hamilton; contractors, Carle & Crowley; cost, $10,000.

OAKLAND.

Two-story brick building for stores and dwelling, on Thirteenth street, near Washington. Owner, —— Hamilton; Architects, Matthews and Son; contractors, Haskell, Smille, & Co.; cost $9,500.

ALAMEDA.

One-story cottage on Webster street, between Pacific and Buena Vista Avenues. Owner and builder, G. B. Moore.

BERKELEY.

Audubon street, near the University, two-story frame dwelling for Prof. B. Moses. Architect, F. W. Beardslee; cost, $3,100.

SAN JOSE.

School-house near town. Owner, Orme School District; contractor, D. L. Watson; architects, Hoffman & Curtis.

LOS GATOS.

One and one-half story frame cottage, with stable. Architects, S. & J. C. Newsom; days' work; cost, about $5,000.

ROSS VALLEY.

Two-story frame dwelling, with stable. Owner, —— Ames; architect, W. F. Smith; contractor, W. M. Fletcher; cost, $6,500.

LIVERMORE.

Two-story frame building. Owner, O'Brien; architect, T. J. Welsh; contractor, A. Pare; cost, $2,684.

RED WOOD CITY.

Two-story frame building. Owner, Chas. Prior; architect, A. Laver; contractor, J. Lenzen; cost, $3,758.

MISCELLANEOUS.

MAXWELL.—Two-story frame building for hotel. Contractor, J. C. White; cost, $2,200.

One and one-half story frame cottage. Owner, W. M. Taylor; contractor, J. C. White; cost, $1,800.

WILLIAMS.—Frame building for a church. Owners, Christian Church Society; architect, J. C. White; contractor, Wm. Folsom; cost, $2,800.

GRAND ISLAND.—One-story frame building. Owner, Annie Myers; contractor, J. C. White; cost, $1,200.

WEST BUTTES.—Frame building for school-house. Contractor J. C. White; cost, $1,200.

Publication Notices.

"*Practical Lessons in Architectural Drawings*, by William B. Tuthill, A. M., Architect, published by Comstock, N. Y., is one of the most practical and useful books of its kind that we have noticed. It contains 33 full-page plates of illustrations (one in colors), and 33 wood-cuts, showing methods of construction and representation."

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